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SERVICES TO BE EXPECTED FROM THE PSYCHANALYTIC MOVEMENT IN THE PREVENTION OF INSANITY*

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I understand that the problem before us for discussion is, How can we best help people to preserve their mental health? and that my part in it is to answer the particular question, What contribution can psychanalysis make toward this end?

I shall confine my remarks almost exclusively to this one point of prevention, resisting the temptation to wander at length over the wider field of the mental treatment of patients who have actually shown distinct symptoms of one or another form of the psychoses.

It is, however, germane to say that inasmuch as psychanalysis is best definable, from the therapeutic point of view, as an educational method of high value, and since, under all circumstances, it exerts its usefulness largely through helping the patient to become a more thoughtful, more rational, and more mature person, the aims of prevention and the aims of treatment are to a great extent the same.

It is also proper to point out that the psychanalytic literature contains very encouraging reports, indicating not only that the temperamental tendency to depressive states, but even the tendency to recurrent manic-depressive outbreaks, can sometimes be affected favorably by this treatment; and that there is some evidence that patients with dementia praecox in its initial stage can occasionally be benefited in the same manner.

It is my confident belief that the contribution of the psychanalytic movement to prevention is to become an important one, but that it will make itself felt not so much directly, through the treatment of individual patients, as indirectly and gradually through the stimulus which these searching studies into the nature and history of human motives must exert on parents and educators, in proportion as the principles discovered or emphasized by them become an integral part of psychologic doctrine.

To assert that it is possible to prevent or cure a psychosis by mental influence is equivalent to asserting the psychogenic origin of these diseases. To maintain this is not to deny that special toxic influences, general disorders of metabolism, or abnormalities of cerebral structure or development may play an important part as predisposing causes, or even that the influence which these causes exert in one or another case may have been the controlling influence, *sine qua non*.

It is, however, certain that even where this is so, the mechanism of the psychosis, as a mental phenomenon and as the sign of the occurrence of a mental process having a more or less clearly definable aim and meaning, ought to be specifically studied, and that in order to do this thoroughly the physician should have made himself aware of the patient's inner life, both as an individual and as a member and representative of a social group or social groups.

The psychoses and psychoneuroses are not to be regarded (psychologically) as mere misfortunes or mere accidents, but as phenomena that represent definite, instinctive attempts at readjustment and the securing of some workable equilibrium, on the part of persons whose actual adaptation to their environmental conditions had proved unsatisfactory in the face of this or that special strain, and whose powers of readjustment had shown themselves inadequate to the task of restoring the disturbed balance in any better fashion. This view is in harmony with that of Meyer, Hoch, Bleuler and others who have stood for a partially psychogenic origin of the psychoses, and have recognized that the constitutional and temperamental make-up of each patient's personality is partially responsible for his illness, or, as I should say, for the method which he instinctively adopts to reassert himself. The psychoses form, in short, one more illustration of the general principle that illness may be classified as the manifestation of efforts toward a certain sort of health.

It is no valid argument against this view to say that the outcome of these efforts, from the clinical and social standpoint, seems anything but desirable. The "desirability" depends, as a rule, only on the satisfaction of the patient's unconscious cravings; but in this sense his illness may secure him something which, with one portion of his nature, he may be said to wish for.

There are times when, from this point of view, a fit of anger fills, psychologically, a useful purpose—then, namely, when it makes the rational thinking which the angry person does not wish to use, or cannot use, seem so impossible that no one asks him to attempt it. Similarly, when a wife's hysteria gains her the attentions of her otherwise inattentive husband, it fills, from the standpoint of her deeper longings, an important place. And the process is, for her, all the more "desirable" if it works without any conscious acquiescence on her part.

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It is believed by those who accept the explanation offered by psychanalysts[1] that the difference in mechanism between the psychoses and the psychoneuroses is one (from the psychologic standpoint) mainly of degree. Leaving wholly aside the problem of physical or chemical influences (not by any means as unimportant, but as not germane to this particular discussion) it may be said that in the case of the psychoses the patient's emotional interest and attention is engrossed in his complexes to such an extent that he becomes submerged in them. The "gain" to him through this process is to be reckoned, as already stated, in terms of the fulfilment of an instinctive but unacknowledged attempt to escape from an intolerable emotional situation, or else to satisfy an unconscious craving.[2]

It is of no importance, as a counter argument, to say that this complex process of readjustment (the details of which I do not attempt to indicate here) would never have taken place but for the presence of a physical "disease-process" in his brain or elsewhere.

Let this be proved by all means if it be possible; or let us admit, as with Hoch, that the brain-cells may be undeveloped. We are not questioning or studying these facts, but are studying only the mechanism of the patient's attempts to find an equilibrium of a new sort.

This principle that the psychoses and neuropsychoses come into existence because they serve a purpose, has been discussed so often that I ought perhaps to assume it as granted, and pass on; but its recognition is so important for the prevention of the psychoses, that a few words of further explanation may not be out of place, the more so that the doctrine here at stake is distinctly an outcome of the psychanalytic movement.

It seems at first sight almost impossible to get away from the patient's conscious point of view, and to deplore with him and his friends, as if for a misfortune without mitigation, the signs of an oncoming mania or depression or paranoia or dementia praecox. But if, through the aid of knowledge and insight, one can succeed in placing oneself in the depths of the patient's mind, at the center of his vain struggles to make the conditions around him square with his desires, even though these be immature and narrow, it becomes possible to see that his illness may have furnished him a real way out of his perplexity, even if not the one that we, looking on, or he, if possessed of full conscious insight, might have wished to see adopted. The justice of this conception becomes clearer if one scrutinizes, to begin with, the psychologic significance of one's own fits of temporary depression, of the "blues." Whatever else the "blues" accomplish, they certainly afford us the chance to bury ourselves in an ocean of self-engrossment, self-pity or self-commendation in which we may become for the time being almost as thoroughly immersed as a dementia praecox patient in his delusions. The difference lies in the power of emergence and its special causes.

I have recently followed with great interest the gradual transition of a reactive outbreak of depressive self-pity, excited by a misfortune in business, into as severe and prolonged and typical a melancholia as one could wish to see.[3]

It occasionally happens that a patient with obsessive fears is intelligent enough (after a certain amount of treatment) and frank enough to see and say that in some respects he feels better satisfied with the prospects offered by his dissociation than by those offered by health; then, namely, when to be well means the facing of situations and renunciations that he is unwilling to contemplate. The only alternative recourse seems to be suicide. As a rule, of course, the logic of the process is concealed from his conscious view. Such persons are somewhat like children, who learn to create, in fancy, a separate realm of feeling and fancy, to which they may retreat[4] for the private enjoyment of emotions in which the other elements of their nature do not permit them openly to indulge. In this realm of fancy the child may become for the time a king, or a being to whom all sorts of excesses of imagination are permissible. If, however, he stays in this realm too long, the return into a life of relative reality[5] and social responsibility may be attended with difficulty. The justification of this comparison only becomes clear when (as sometimes in dementia praecox or paranoia) it is possible to get at the patient's delusions from their deeper and, to him, better side.

What such a child does for a brief space, when he withdraws into this delightful world of fancy, peopled, it may be, by beings from some other sphere,[6] the paraphrenic (i. e., "dissociated" or schizophrenic) patient may — in the terms of this important theory — be said permanently to do. And, *mutatis mutandis*, similar statements may be made for manic-depressive and for paranoid patients. Such persons may, namely, become in different degrees and ways, so preoccupied with the details of their "autistic" life, even when, to the untrained eye, this does not appear to be the case; they may get so immersed in their fantasies and day-dreams that they lose touch, to a greater or less extent, with the life of relative reality. During a period of many years I have had the chance to watch a young girl[7] who, although still able and even brilliant in certain intellectual lines, has been gradually sinking into such a life of fantasy, in which secret marriages, pregnancies and miscarriages play prominent parts.

We are too apt to define each other's tendencies in terms of misfortune, weakness, deficiency and lack. This procedure is misleading. There is really nothing negative in nature. If a plot of ground does not grow grass, it runs to weeds, but the weeds are as positive in their nature as the grass and often more resistive to destruction.

1. See especially, as making clear the grounds for this mode of reasoning, Jung's now classical study of dementia praecox (published in English as one of the monographs of the Jour. of Nerv. and Ment. Dis.), Freud's investigation of the Schreber case of paranoia (Jahrbuch für Psychoanalytische u. Psychopathologische Forschungen, iii, 9), Abraham's study of manic-depressive insanity (Zentralblatt für Psychoanalyse, ii, 302. See also the brief but excellent study of the psychoses by Bernard Hart entitled "The Psychology of Insanity").

2. The term "unconscious," as here used, indicates the absence of selfconscious awareness only.

3. No psychanalytic treatment was attempted or would have been practicable. After the attack is fairly over it should be used for the prevention of a second attack.

4. Compare Bleuler's Das Autistische Denken, Jahrb. für Psychoanalytische und Pathologische Forschungen, iv, 1.

5. I say "relative reality," because even the most conventional and usual sort of life gets its form and color from the imagination of each individual. Each person's world is, in part, his personal world alone.

6. I have a patient at present in mind, of good intelligence, but small in stature and timid in temperament, who suffers both from depression and from compensatory ideas of courage. All his life long he has gained great satisfaction from day-dreams of power and prominence. Even at the present time, when he is about 22 years old, he occasionally imagines himself to be a supernatural being, wandering through space in the skies or "talking with God," and dreams of driving a four-horse sleigh or piloting a swift boat into that unknown world from which, in reality, he shrinks.

7. She entirely refused treatment.

Life may often be said to consist in the gradual (at times apparently sudden) abandonment of equilibriums which had sufficed well enough up to a certain point, in favor of new and more insistent equilibriums that loom up as representing, as the case may be, a more advanced (sublimated) or a more regressive (infantile) but seemingly more stable stage of evolution or of evolutionary tendency.

It is in the terms of this process that the history of the psychoses should be written.

It is important to recognize that this substitution of new equilibriums for old ones often concerns, at least in the first instance, not the whole personality, but only a part of it, and that in proportion as this happens the individual loses his unity and becomes relatively dissociated.

Also, and by the same token, the process may go on to a great extent without the active or even passive intervention of the consciousness and the constructive imagination, although these powers might, if properly trained to the work, be counted on to lend powerful assistance to the maintenance of the mental unity and to the binding of the forces of the past (which in a certain sense still lives) into one coherent whole with those of the self-foreshadowing future.

These two facts — that the mentally unbalanced person[8] is "dissociated," i. e., subject to two or more sets of strongly conflicting motives, and that this happens without the intervention of consciousness — which, however, might intervene with profit, at least in a certain proportion of the cases — are to be considered as of fundamental significance.

It is the function of psychanalysis to see that consciousness comes to its rights and is given its due share in the determination of the result.

I have, however, been led by my experience to believe that patients with oncoming psychoses, several of whom I have watched with interest throughout the gradual development of their illnesses, are very tender plants and need to be handled by psychanalysts (as by therapeutists of all sorts) with extreme care.

I also sympathize heartily with the view expressed by several experienced observers,[9] that similar care, as well as great patience and friendliness, are essential, if one wishes to do good and avoid harm in dealing with neurotic children by the trenchant weapon of psychanalysis.

But to say this is to broach the subject of prevention; and before speaking on that point I wish to discuss a little further the general claims of mental influences to be considered as both causative and curative, in theory at least.

It is obvious that the questions which are before us for consideration would never have been asked unless the belief was somewhat prevalent that the degree of liability of any given person to fall a prey to mental disorders of one or another sort was in a measure dependent on the mental influences to which he had been previously subjected. As a matter of fact, I suppose that all physicians tacitly assume this proposition to be proved, if not, indeed, self-evident — even those who would think that we ought to look for the final causes of the psychoses in brain-changes, of toxic or degenerative or hereditary origin, and who would reject the formal assertion that a purely psychogenic basis for these disorders was conceivable.

But if it makes even some difference as regards his liability to insanity, as to what mental environment a person has been subjected to, then several important inferences follow:

In the first place, if the psychoses are even partially of mental origin — i. e., "psychogenic" — who can say how far this may or might be true?

An adequate explanation, satisfactory to all disputants, of the exact etiology and nature of these serious mental disorders will, to be sure, never be furnished until the time arrives when the nature of the relationship between the body and the mind is expressible in clear and comprehensive terms.

This is largely a philosophical problem,[10] and as such cannot be discussed here. I venture nevertheless, to assert that but few students of philosophy would to-day get warm over the particular difficulty that confronts us and that forms a real stumbling block to a certain proportion of physicians. Most such students would surely encourage us to believe that a psychogenic etiology is, theoretically, just as admissible as a physical or an hereditary or a chemical etiology.[11] But when one says "psychogenic etiology," one should be understood as including all that that term implies to the man who uses it. If he believes that all mental phenomena have their physical aspect or that they are hereditary, then "psychogenic" means for him, in so far, "physical," etc. If he does not believe this, then "psychogenic" means for him purely mental.

Both practical and scientific considerations justify us in accepting as genuine any causes which *seem* to lead to these disorders, provided only that they are not reducible to simpler, more manageable terms.

One thing seems to me certain: While it is true that those who study the psychoses as diseases of the brain can count on the powerful aid of chemical and histologic tests, it is equally true that those who, on the other hand, prefer to emphasize the psychogenic aspect of this etiologic problem have the great advantage of placing themselves squarely in the position of the patient who is striving to find himself and to realize his destiny on the battle-ground of social life.

But I pass, now, from the consideration of the mechanism of the psychoses and the needs of the distinctly neurotic child to the subject of preventive education in the stricter sense, as applicable to children at large, whether at home or at school and whether sick or well; and I attempt again to answer the question, What contribution has psychanalysis to offer.

As I have already indicated, this contribution will perhaps always be mainly an indirect one. I propose nothing so insensate as that parents, or even teachers, should practice psychanalysis; but I maintain that this branch of medicine has something to offer to parents, more to teachers, and a good deal to the family physician. All these classes of persons need to have their own points of view reformed before they attempt to form the character of the child. They need a wider comprehension than that which has been current hitherto, as to what the psychologic nature of the child is, and what his purposes and his dangers are, as expressed in terms of his conflicts, his con-

8. Provided that his disorder is of one of the types here in question.

9. Compare Internationale Ztschr. f. Aerzt. Psychoanal.

10. For the most recent discussion of this problem, from the points of view of philosophy and physical science, see the Concept of Consciousness, by Prof. Edwin Holt, Harvard University.

11. This applies even to the psychoses of periodical recurrence and relatively long duration. It is hard to explain these periodic recurrences on any hypothesis. But it is hard also to explain the recurrences of the seventeen-year locust pests.

cealed and repressed thoughts, feelings and desires, and his so often misused imagination; and they need to have this knowledge on the basis of a thorough acquaintance with the psychology of human nature in general, as gained through clinical research.

Needless to say I do not claim that psychanalysts have, at present, surpassing claims to recognition as physicians, educators or parents. The qualities required for serving in these capacities are numerous, and those which nature and instinct provide may, at their best, be more valuable than those gained through any kind of training whatsoever. No innate capacities are, however, so good but that they can be made still better by study and by knowledge.

In the first place, I think our current standards of conduct, and of thought as related to conduct, inadequately reflect the best conceptions of the ultimate goal of education and of life. Of course there are vast numbers of persons to whom this proposition is not applicable to any practical extent, and the proportion of these to whom it does not apply is doubtless particularly large among educators.

I presume it will hardly be disputed that the kind of person who most completely fulfils his destiny is he who looks on himself not only as a private and independent individual, but also as at once a member and a representative of the community in which he lives, then of a widening series of communities, and eventually of an ideal and all-comprehensive community. This proposition was long ago made the basis of the educational system of Froebel[12] which should be accepted as offering the best prophylactic method at our command, applicable to all children, though its influence might easily go for nothing unless reinforced by that of the child's environment and home.

But although definitions of this sort are generally accepted as indicating theoretically a suitable scheme of human opportunity and obligation, yet the observation of human conduct leads to the conclusion that the sentiments corresponding to them do not exert the thoroughgoing influence that one might look for. Obviously, these sentiments are but imperfectly accepted by some portion of the minds of most men. The very prevalence of the psychoneurotic illnesses and of the corresponding defects of character and temperament from which all men suffer in some measure, indicates that this is true. For many of these forms of illness, as well as many of the defects of character, are largely based on the self-assertion of the individual in the narrower sense, with his demand for personal "rights," and his (largely infantile, and thus selfish) longings and cravings, as against the assertion of his broader, his ideal self, recognizant rather of obligations to the community and of capabilities for usefulness than of rights.

I blame no one for this situation, and least of all do I bring an indictment against nervous invalids as a class, most of whom are handicapped and narrowed only by virtue of a necessity of development or evolution, against which they may have contended with all the force and light at their command. But the facts are so; and if it be asked what classes of persons it is that most often, even under conditions of the severest strain, escape the toils of invalidism, and of the sense of isolation that goes with it, it may fairly be said that they comprise, first, the persons of high grade such as I have just described,[13] who are able thoroughly to learn the lesson of "sublimation," perhaps because they were so "set" by nature and so favored by their environment that they could learn it easily; next, those who are so constituted—whether by inheritance or by training—that they fit adequately into the conditions by which they find themselves encompassed, and are not hampered by the visions of unattainable ideals.

It will be understood, of course, that I would classify as high-grade not only those persons whose native powers of reason and intuition, unhampered by serious defects, have been such as to enable them to grasp and define the doctrine of loyalty in its most highly developed and rational form, but all persons who are genuinely loyal to such ideals as they see. It is, in fact, this quality of genuineness that is controlling and indispensable as a factor in education and in life.

It may be urged that psychanalysis does not take the cultivation of social ideals as an end for which it should directly strive. Technically, this is true. But psychanalysts know well the evils that attend the overassertion of personal desires, cultivated too exclusively in and for themselves, and the importance of the opposite course follows by inference. The primary task of the psychanalyst is to remove handicaps to progress, but only in so far as these give rise to painful conflicts in the mind. They can, however, see and should endorse the schemes of education by which these handicaps are best avoided.

Doctrines of this sort cannot, obviously, be preached to young children, either at home or school, with any prospect of considerable benefit. If too strongly reminded, even of their social obligations and opportunities, children are likely either to react by a revolt, or to develop a hypocritical tendency, both of which results indicate the activity of that very repressive and dissociative tendency which is so objectionable.

On the other hand, teachers, parents and physicians can appreciate these principles, testing the genuineness of their beliefs, if necessary, by psychanalytic methods, and through them strong influences of the best sort can be brought to bear on the children under their charge. The best teachers do this already, but the background of intelligent cooperation should become more effective.

The steady progress toward sublimation of those individuals whose developmental tendencies are of the best sort, seems to indicate that they instinctively cultivate (in modes conforming to their age), even from the moment of their birth, the powers and pleasures which seem most personal and private, with reference to a social outcome which is soon seen to imply a loyalty to communities or social groups that exist for them only in an ideal sense;[14] while those who fail to instinctively seek this outcome are apt to exhibit, in a negative sense, a dim recognition of the binding force of these social obligations, by developing tendencies

12. Froebel: The Education of Man; see also Report on the Kindergarten by Susan E. Blow and others.

13. This statement might be considered as misleading, but it is difficult to cover every contingency in a brief space. I do not, of course, mean to deny that nervous invalidism is to be found, perhaps to a considerable extent, among persons devoting themselves unselfishly to the public welfare. Of course, among persons of this class, as among others, innate differences of endurance are found, and specific tendencies of a neurotic sort may happen to develop. What I mean to say is that in so far as the ability to lose oneself in one's job, whatever this may be, acts as a steadying and wholesome influence, this influence is likely to be more far reaching in proportion as the job in question enlists tendencies of genuine disinterestedness, and makes it possible to put aside considerations of purely personal, as contrasted with social, interest.

14. Compare Royce's Philosophy of Loyalty, and numerous other publications by the same writer.

which are positively asocial or antisocial in their significance.

Even the study of the sex life finds its most important bearing in its accentuation of the fact that man belongs to society in a sense deeper than commonly appears; that the family and, in general terms, the group should be considered as the unit, rather than the individual.

We ought to work for the maintenance of those educational systems and principles that help children first to feel and then to see that every man is most truly himself as an independent agent when he feels himself bound to merge his private interests in the interests of persons and causes outside of himself. But this tendency should go, in word and conduct, no further than it is expressive of a genuine sentiment.

Social sentiments of this better sort and the conduct based on them should not be regarded as implying standards seldom to be reached, but rather standards to which many persons might measurably attain. Children, especially, are natural idealists and respond to appeals which adults often dismiss as idle.

As illustrative of the kind of service that education can sometimes render, even to very young children, through planting the seeds of the broader sense of social obligations which is so favorable to mental solidarity and health and so hostile to the dissociation that is brought about by repression I will mention an observation, superficially trivial, but suggestively important.

A small child, who had fallen into habits of theft, became strongly captivated by the idea, which was carefully presented to him, that he could take "with his eyes," instead of with his hands, the things that he longed to appropriate, and thus gain, ideally, the satisfaction of possession, reinforced by the gratification of satisfying a dim social ideal, although obliged to renounce the pleasure of exclusive ownership,[15] with its denial of the social principle. Subsequent developments indicated that this discovery, which appealed, perhaps, primarily, to his imagination only, helped to effect a real change of temperament.

The educational system that has elaborated most thoroughly the methods of inducing or emphasizing this community sentiment as a goal of progress and has placed them on a practical footing for children between 4 and 6 years old, is undoubtedly the kindergarten system of the great thinker and educator Friedrich Froebel. Kindergartens do not by any means always come up to his ideals, but one cause of this lies in the failure of parents and their advisers to recognize the part which this system aims theoretically to play, and in their failure to give an adequate support to those who are working toward this end.

It is, however, not enough to admit the importance of a general preparatory training of this sort, even if it could be supposed that its principles were to be emphasized through the discipline of the home.

Each child has his own special needs, to be met by appreciative sympathy, direction and correction, and these needs are to be best understood when they are studied in the light of a knowledge of those to whom the tendencies to repression, dissociation and ambivalence have gone on to a more or less excessive degree.

A certain amount of repression, dissociation and ambivalence seems to be an inevitable attendant of competitive existence; but it has not been appreciated until recently at what an early stage in the child's life these tendencies may appear. It is true that, with the majority of children, neither repression nor dissociation, nor the tendency to primary or reactive emotional excess that leads to these results, is developed to any very objectionable extent. Children of the best sort, no matter how childlike and, for a time, immature their traits may be, appear to be marked by a characteristic quality that stamps every act as belonging in part to a maturer future of which it may be said to be prophetic, while, perhaps on that very account, it appears also to belong peculiarly to the present moment.

Nevertheless, the pitfalls into which so many children actually stumble (not so much because they are degenerate in the sense of having progressive brain defects, as because their power of adaptation is insufficient for the requirements of life in a given environment) should be recognized as standing open for even the most broadly adaptable child. The earliest years of all children are years of self-engrossment, the finding of themselves in the sensations that attend their reflex acts, their impulses, the recognition of their powers, desires and fears, and as reflected in the attention of their parents. And this period is beset from the outset with the danger that these new-found gratifications and excitements will be taken too exclusively in and for themselves.

The engrossment of these primary, primitive and elemental pleasures — which soon become modified by the comparisons which children institute between themselves and others, and the instructive discovery of their capacity for compensations and over-compensations — is then more or less superseded by the engrossments of their powers of fantasy, through which the unpleasant realities of the social life, for which they are still unprepared, can be shoved off for a time, in the interest of a more unified life of imagination.

Hand in hand with this tendency comes the recognition of the possibility of repressing what is too distressing, coupled with that of preserving the pleasurable aroma even of excitements that might be reckoned painful.

And here begins the double life of which every child lover should be able to see the traces and the dangers, and also, it should be said, the possibilities of added usefulness.

Children outgrow, it is true, vast numbers of habits which they are tempted to adopt in these earlier years, and it is as objectionable to see signs of permanent mischief in incidental tendencies as it is to overlook their psychologic significance. One may be trustful, but should none the less be watchful.

The principal dangers to which parents are exposed are of a twofold sort. First, they may fail to get any adequate idea of the process which is going on in the child's mind. Next, they may fail to recognize that each child, at each stage of his existence, is instinctively trying to construct a species of unified world, and is using therefor a set of symbolisms which must, perforce, be based on the sensations which he gets from his own efforts and functions, however foreign and trivial, or even revolting, the language of these symbolisms may seem to the adult.

Finally, they may let the desire to seek their own gratification (even though unconsciously) stand in the way of the best interests of the child.

This latter danger is important and familiar and although not difficult to understand is very difficult to

15. I am not attempting here a complete explanation of theft-habits, certain roots of which have been shown by psychanalysis to be very deeply rooted in infantile instincts.

avoid. The love of the parent for the child usually means great devotion; but this is too often given for the sake of a return in kind, and it then partakes of the character of self-love, or mirror love. This sort of devotion fetters the child instead of making him more free, whereas really disinterested love increases the child's independence by arousing in him a corresponding disinterestedness on his part, in a form suitable to his age.

The parent should be a bridge over which the child may pass to a social existence of a wider sort, carrying habits and tendencies of loyalty and service, and feeling within himself a foreshadowing sense of the larger community of which he is to become a part. But, instead, it too often happens that the father or the mother, by dint of the very exclusiveness and intensity of their own affection and the fascination of its exhibition, creates or intensifies a similar exclusiveness in the child's mind, and thus chains him to a set of private gratifications which become sensuous and exacting in proportion as they are asocial. The "father-complex" and "mother-complex" have played with good reason a large part in psychanalytic writing, as in life.[16] Repeatedly have I seen lives that should have been eminently happy, threatened with unhappiness through influences like those which I have outlined.

Another important principle which every one should know is that the fantasies and desires of children, even when their object is something which to the adult seems insignificant or unworthy, have meanings which *come near* to being good and useful meanings, and may by chance be transformed by good management into something useful and creative.

If the old saying is true, that the highwayman makes often a good turnkey, then there must have been a time when a dose of prevention would have been in place for him. And the same is the case with children. The slightly neurotic or imaginative child who is bound, at each phase of his life, to try his hand at building an imaginary world of interest, of beauty, and, above all, of power, will do this or symbolize his attempts to do so, by every means that lie at hand.

The intelligent parent will seek to see through the act or the symbol, and to appreciate the child's meanings. These meanings should be divined through real sympathy, based on close but intelligent intimacy, and should be taken at their best value.[17] For it may depend on the turn of this straw whether a desirable outcome finally emerges or whether the act or interest that might have served a good turn as a symbol and then have been replaced, becomes, through repression, the center of a hampering craving. The tendency to relive, in later years, the fantasy-life of self-indulgent childhood may arise from either of two sorts of causes; an excessive preference for the self-indulgent pleasures first exhibited at an early period when another and better choice might perhaps have been made with almost equal willingness; and a tendency to regression toward these renounced but simpler pleasures, showing itself under conditions of fatigue and strain from which every person seeks instinctively to escape. The child should be protected so far as practicable from both of these dangers, first through having ample inducements offered him for making the best choice, and, next, through being taught to do well and easily the tasks that he is to be called on to do.

In other words, his incitements to the best choice (as, especially, through the imitation of living and historic characters, and through examples afforded by literature), his adaptations and his adaptability should all be held in mind, and with special reference to the specific sorts of dangers that he must encounter.

The imagination of the young child is a weapon of immense power for evil or for good. It can be turned to the support of the reason or to the intensification of sense cravings. But on this great subject I cannot enter here.

The supplementary addition which I propose to this educational scheme is one that in a certain sense restores the ambivalent principle, as one that when rightly understood is broader than even the principle of independence and power, as commonly conceived. The best man—or child—is not alone a single individual; he is likewise a member of a community, or series of communities, eventually of an ideal community of some sort to which he feels that his loyalty is due and to which he becomes rebound. Similarly, just in proportion to the degree that a man makes himself independent of narrowing ties such as imply slavish dependence, whether based on fear or favor, or longing for approbation and attention, or jealousy or envy, and becomes in that sense independent, he becomes once more dependent on the obligations imposed by his own good qualities and powers, according to the principle hinted at by the term *"noblesse oblige."*

If such a person frees himself from the objectionable and hampering features of his childhood, he should retain, nevertheless, and all the more, the best that his childhood stands for, thus expressing, in his life, all that "religion" literally taken, indicates, namely, a rebinding accompanied by a setting-free. Nothing less than this sort of ambivalence should be, I think, the goal of education for the normal and the neurotically disposed child. This sort of rebinding which should show itself able to meet, at least fairly well, any ordinary test of genuineness is also a goal aimed at theoretically by the educational system of Froebel. It is, of course, not to be supposed that a couple of years even in the best kindergartens, much less in any given school which bears that name, is to be reckoned as a sure prevention against subsequent psychoses, any more than it is to be supposed that every person of the type to which I have above alluded as the best in kind, is to be considered as, *ipso facto*, beyond the reach of these dangers. The causative factors ordinarily involved are far too numerous for that, but one reason that I rate so high the possibilities of this system is that while it aims to use all obvious means for the development of character without needlessly calling the conscious attention of the child to this aim, it recognizes also the importance of taking some measures to prepare the child, through very simple investigations into the results of his own acts,[18] for making later, even if still only in a simple form, that kind of rational self-scrutiny which psychanalysts have learned to look on as of so much value.

One of the most obvious fruits of this rational self-scrutiny is that — contrary to the usual belief — it is destructive of that morbid, emotional self-scrutiny that goes by the name of introspection and that shows

16. Compare papers by Abraham and by Jung in the Jahrb. f. Psychoanal. u. Psychopathol. Forsch., i, 110, 155.
17. Compare R. L. Stevenson's Lantern Bearers.
18. Compare The Kindergarten: A Report by Susan E. Blow and others, 1913.

itself so often as a sign and a promoter of the neurotic disposition. I am not wedded to any one plan of education, however, and should welcome any scheme that could show evidences of its capacity to develop character, self-reliance and the recognition of community obligations.

Let it not be supposed, however, that this claim can, without further inquiry, be made for any and every system that makes a great point, with quasi-military vigor, on the overcoming of difficulties just for their own sake. This has its value, but it is a value that can easily be estimated too highly. After all, it is the personality and previous training of the teacher that are the elements of chief importance. But every such teacher should have been taught to accept a hint from the experience of the psychanalyst, and to use, not only general but specific means to make his personality eventually unnecessary to his pupils. The importance of following this rule was pointed out by the able Mme. de Stäel, as a consideration worthy the attention of every legislator.

GENETIC FACTORS IN ONE HUNDRED CASES OF PSYCHONEUROSIS*

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The object of this paper is not to present any new genetic or etiologic factors for the psychoneuroses, or to claim any one genetic factor as the origin of these nervous conditions. It is merely to present an analysis of 100 cases which have been studied to see what genetic factors have been found to occur. Theories can be met and controverted, or strengthened and established, only with the help of statistical studies. What are needed to-day are statistics of cases by hundreds and thousands. This is my excuse for presenting the following study:

The cases were gathered from the records of the out-patient department of the Boston Psychopathic Hospital. Here the clinic has been a steadily increasing one since its opening nearly two years ago, until it now numbers over 100 new cases and over 400 old cases a month. The cases are of three classes: patients discharged from the hospital that are subsequently followed up in the out-patient department; patients brought to clinic by various organizations; by court order; by charity agencies, etc., and cases of patients coming of their own initiative, alone or with friends. Over 1,500 new cases have been seen, and of these over 100, or about 7 per cent. of them, have been diagnosed as psychoneuroses and include cases of hysteria, psychasthenia, neurasthenia, etc.

METHOD

First, the statistics dealing with 100 cases as a whole will be presented, next, an analysis of various groups will be considered, and, lastly, conclusions will be drawn.

In the 100 cases studied, 57 patients were males and 43 females. The patients varied in age from 14 to 58 years. The average age was 34+. By decades the patients were distributed as follows: in the first decade, none; in the second decade, 10; in the third decade, 28; in the fourth decade, 36; in the fifth decade, 17; and in the sixth decade, 9 cases. Thus, two-thirds of the patients were from 21 to 40 years of age. Thirty-five patients were of native stock and 60 were foreign-born, or of foreign parentage. In 5 cases the stock was undetermined.

Ten years ago, Dubois wrote: "Nervousness arises from two factors: the one, essential and variable, viz.: natural psychopathic tendencies (hereditary or acquired in fetal life); the other, contingent and polymorphic—viz.: provocative agents."

An analysis of the cases for possible genetic factors showed that in fifty-six cases congenital causes seemingly existed, for the psychoneurosis subsequently developed; that is, psychopathic tendencies of an hereditary nature, or acquired in fetal life. In 44 per cent. of the cases, no such congenital causes were found. This absence of evidence of psychopathic tendency in these forty-four cases is probably explained by one or more of the following reasons: first, the large number of these patients (70 per cent.) that were of foreign stock, which means, in a majority of instances, inability to give intelligent and inclusive family histories, or histories of early life; second, the natural tendency of individuals to hide evidence of any trace of familial inferiority or deterioration; third, the impossibility in a large clinic of taking a detailed and thorough history in all cases.

The fifty-six cases considered to have probable congenital psychopathic tendencies, were grouped as follows:

1. Luetic stock: those showing evidence of congenital syphilis.
2. Insane stock: those giving a history of insanity in their families.
3. Alcoholic stock: those having alcoholic forebears.
4. Neurotic stock: those having "nervous" forebears, some of whom possibly were insane.
5. Tuberculous stock.
6. Miscellaneous stock: those having a history of cancer, asthma, etc., among their ancestors. Statistics of these groups are shown in Table 1.

TABLE 1.—FIFTY-SIX CASES OF PSYCHONEUROSIS GROUPED ACCORDING TO CHARACTER OF ANCESTRY

	No. of Cases	Sex, F.	Sex, M.	Foreign Stock, Per Cent.	Age, Yrs.	Symptom Age	Duration of Symptoms
Luetic	3	0	3	33	19.7	12.7	7.
Insane	14	7	7	35	35.7	27.2	8.5
Alcoholic	4	1	3	50	30.5	30.	.5
Neurotic	24	18	6	50	38.4	28.9	9.45
Tuberculous ...	5	3	2	60	40.8	36.2	4.6
Miscellaneous ..	6	4	2	100	39.6	32.5	7.1
Av. or total....	56	33	23	51	34.1	28.4	6.1

In this table, the most interesting point shown is the variation in age at which symptoms occurred in the different groups. It seems logical to assume that the more potent the congenital factor, the earlier symptoms may be expected to appear, or inversely, that the earlier symptoms appear, the more potent the congenital factor involved. Assuming that the symptom age bears some relation to the potency of the genetic factors involved in the production of the psychoneuroses, among the congenital factors luetic, insane, neurotic, and alcoholic defects of forebears are potent in the order named.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In addition to the congenital or essential factors already considered, the relative importance of provocative factors such as environmental or somatic difficulties was studied. The distribution of these cases and their symptom age is shown in Table 2.

TABLE 2.—PROVOCATIVE FACTORS IN FIFTY-SIX CASES OF PSYCHONEUROSIS

Provocative Factors	Environmental		Somatic	
Stock	No. Cases	Symptom Age	No. Cases	Symptom Age
Luetic	2	14.5	1	7.
Insane	5	38.	9	25.6
Alcoholic	3	29.	1	33.
Neurotic	15	32.6	9	23.3
Tuberculous	4	40.2	1	20.
Miscellaneous	4	33.3	2	31.
Av. or totals..	33	33.	23	24.4

From these data, it seems that, given a psychopathic inheritance, an individual is likely to show symptoms of a psychoneurosis sooner when harassed by somatic than by environmental difficulties.

The cases were found to present various symptoms which were grouped under several heads: somatic, social, psychic, sexual, and religious. The frequency with which symptoms occurred in these various groups is shown by the following figures in 100 cases: somatic symptoms in 92 cases; social, in 50; psychic, in 19; sexual, in 32; religious, in 6; total, 199; average 1.9+. These figures show that the most common symptoms are of somatic nature.

TABLE 3.—ELABORATION OF SYMPTOMS

Group	No. of Cases	Duration of Symptoms
A	32	4.
A + B	39	6.7
A + B + C	29	7.

In Table 3 is shown the elaboration of symptoms.

Cases with one group of symptoms averaged 4 years in duration; cases with symptoms of two groups averaged 6.7 years, and cases of three or more groups averaged 7 years. In other words, the longer the psychoneurosis existed, the more complex and numerous became the symptoms.

In diagnosis, symptoms may suffice; in treatment, knowledge of the provocative agents and their removal may be essential, but in prophylaxis, the essential factors must be recognized. Within the last few years, so much stress has been laid on the provocative agents which have been brought into the limelight by psychanalysis, that the essential factors have failed to receive proper attention. No matter how early a psychoneurosis may be diagnosed; no matter how brilliantly an individual provocative agent may be pursued, captured, and dissipated by psychanalysis, psychopathic tendencies, hereditary or acquired in fetal life, will remain.

In preventive medicine, early diagnosis and successful treatment are both important, but prophylaxis is especially essential, and no successful prophylaxis can disregard or underestimate the importance of the essential factors in the production of a disease.

CONCLUSIONS

The conclusions to be drawn from this analysis of 100 cases of psychoneurosis are as follows:

1. In the majority, if not in all cases of psychoneurosis, there exists an essential factor, namely, a natural psychopathic tendency, hereditary or acquired in fetal life.

2. If the age at which symptoms occur among psychoneurotic individuals may be considered an index of the potency of the essential factor at work, luetic, insane, neurotic, and alcoholic defects among forebears are of importance in the order named in the production of psychopathic tendencies.

3. Among psychoneurotic individuals, somatic difficulties tend to induce symptoms earlier than do difficulties of enviroment.

4. The longer a psychoneurosis exists, the more numerous will the symptoms probably be.

5. Prophylaxis against the psychoneuroses can be furthered by early diagnosis, and by the elimination of the provocative agents of somatic and enviromental difficulties with the aid of medical treatment, psychanalysis, and psychotherapy, but no prophylaxis can be effective that fails to consider the essential factors in the production of the psychoneuroses.

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NOTES ON PUBLIC INSTITUTIONAL WORK IN MENTAL PROPHYLAXIS

WITH PARTICULAR REFERENCE TO THE VOLUNTARY AND "TEMPORARY CARE" ADMISSIONS AND THE "NOT-INSANE" DISCHARGES AT THE PSYCHOPATHIC HOSPITAL, BOSTON, 1912-1913 *

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The technic of mental hygiene — how slender a prospectus is yet available! National and state societies, agitation for a government bureau, leaflet campaigns, after-care committees, programs of prophylaxis, all are signs of a developing propaganda. How often, as Mr. Beers of the National Committee has remarked, how often does this propaganda threaten to turn into a mere *letter-head!*

To be sure, a larger view reveals the fact that the entire movement is far more than a propaganda. A careful study of the increasing employment of the now classical plan of *voluntary admissions* to public institutions for the insane would reveal the large proportions of a deeper movement than what we now term mental hygiene. The law underlying voluntary admissions of the insane to institutions went into effect in Massachusetts, for example, in 1881. The opportunities afforded by the law were embraced by but a small number of patients, however, until the stimulation secured by a revision of the old law in 1905 (Chapter 432, Acts of 1905) permitting such voluntary patients to be supported like other patients from the public funds.

It is worth while to glance at a table illustrating the results of what was essentially a maneuver in mental hygiene. Table 1 illustrates conditions before

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* Contributions from the State Board of Insanity, Massachusetts, No. 22 (1914.2). (Bibliographic Note.—The previous State Board of Insanity contribution was by E. E. Southard, entitled, "Eugenics versus Cacogenics: An Ethical Question," Jour. Heredity, September, 1914.)

* Read before the Section on Nervous and Mental Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City N. J., June, 1914.

and after the 1905 amendment to the voluntary admission law and the establishment of the Psychopathic Hospital.

TABLE 1.—VOLUNTARY ADMISSIONS TO PUBLIC INSTITUTIONS* OF MASSACHUSETTS

Year	No. of Admissions
1895-1899	405
1900-1904	520
1905	84
1906	125
1907	156
1908	195
1909	185
1910	200
1911	237
1912	282
1913	**636**

* Including a large private institution, McLean Hospital.

Until 1905 the voluntary admissions had run along rather evenly at 100 a year more or less, showing a slight response to the increase in general population. The majority of these patients had been private patients. After 1905 the absolute and relative numbers of voluntary admissions slowly rose up to 1913, when there was a signal and rapid advance due largely to the establishment of the Psychopathic Hospital.

TABLE 2.—ADMISSIONS WITH GROSS AND PERCENTILE FREQUENCY, 1906-1913, TO MASSACHUSETTS INSTITUTIONS

Year	Total	Voluntary	Per Cent.
1906	2,670*	125	5
1907	3,022	156	5
1908	3,195	195	6
1909	3,096	185	**6**
1910	3,254	200	6
1911	3,207	237	7
1912	3,350	282	8
1913	4,051	636	**16**

* These figures include so-called regular commitments, and both insane and sane voluntary admissions. They do not include the so-called "temporary care" group of admissions to Massachusetts institutions.

The leap from 8 to 16 per cent. voluntary admissions among the total admissions within one year is surprising. In point of fact, 440 of the 636 voluntary admissions of 1913 were admissions to the Psychopathic Hospital.

Enough to demonstrate how easy it is by setting a social mechanism in a suitable way to change the fate of various psychopaths. It is not my purpose here to investigate the value and results of the policy mentioned, although I believe it to be obvious that good must accrue. I think it worth while to print the text of the voluntary admission law of Massachusetts, hoping that some readers who live outside the boundaries of the sixteen states having such laws will be minded to push for the enactment of similar laws in states whose civilization has not reached that point. This reads as follows:

VOLUNTARY PATIENTS. R. L. 87

SECTION 45. The superintendent or manager of any institution, public or private, to which an insane person may be committed, may receive and detain therein as a boarder and patient any person who is desirous of submitting himself to treatment, and who makes written application therefor and whose mental condition is such as to render him competent to make the application. Such person shall not be detained for more than three days after having given notice in writing of his intention or desire to leave the institution. The charges for the support of such person in a state institution shall be governed by the provisions of law applicable to the support of an insane person in such institution, provided the approval of the state board of insanity shall be obtained in writing.[1]

1. It is the provision for *public support* of voluntary cases, herein provided, that turns the voluntary admission case into an important means of mental hygiene.

Nevertheless, although it is certainly but semicivilized for a state to remain without the mechanism for voluntary admission of insane persons to public institutions, I should hardly go so far as to advocate as yet for all communities laws like the *temporary care* laws of Massachusetts. Perhaps they require further testing before they can be regarded as perfect. I give the more important of these laws, that dealing with seven days' care without commitment, hoping that its humanity will appeal to those whose communities are prepared to favor the patient's cause *as patient* at an apparent slight risk to his rights as an individual:

CHAPTER 395, ACTS OF 1911

AN ACT RELATIVE TO THE RECEPTION AND TEMPORARY CARE IN CERTAIN INSTITUTIONS OF PERSONS SUFFERING FROM MENTAL DERANGEMENT

The superintendent or manager of any hospital for the insane, public or private, may, when requested by a physician, by a member of the board of health or a police officer of a city or town, by an agent of the institution's registration department of the city of Boston, or by a member of the district police, receive and care for in such hospital as a patient, for a period not exceeding seven days, any person who needs immediate care and treatment because of mental derangement other than delirium tremens or drunkenness. Such request for admission of a patient shall be put in writing and filed at the hospital at the time of his reception, or within twenty-four hours thereafter, together with a statement in a form prescribed or approved by the state board of insanity, giving such information as said board may deem appropriate. Such patient who is deemed by the superintendent or manager not suitable for such care shall, on the request of the superintendent or manager, be removed forthwith from the hospital by the person reqesting his reception, and, if he is not so removed, such person shall be liable for all reasonable expenses incurred under the provisions of this act on account of the patient which may be recovered by the hospital in an action of contract. The superintendent or manager shall cause every such patient either to be examined by two physicians, qualified as provided in section thirty-two of chapter five hundred and four of the acts of the year nineteen hundred and nine, who shall cause application to be made for his admission or commitment to such hospital or, provided he does not sign a request to remain under the provisions of section forty-five of said chapter five hundred and four, to be removed therefrom before the expiration of said period of seven days. Reasonable expenses incurred for the examination of the patient and his transportation to the hospital shall be allowed, certified and paid as provided by section forty-nine of said chapter five hundred and four, as amended by chapter four hundred and twenty of the acts of the year nineteen hundred and ten, for the allowance, certification and payment of the expenses of examination and commitment.

I do not here discuss the operation of this seven days' care law, but merely wish to call attention to the stimulation afforded by the establishment of the Psychopathic Hospital to the drawing from the community of many persons suspected of insanity under conditions relieving them of stigma and expense in case they are proved not to be insane.

By the courtesy of Dr. Menas S. Gregory of Bellevue Hospital, I also include the text of a law passed by New York State in 1912, dealing with an ambulance service for the insane. This law goes in some respects further than the Massachusetts law and is worth considering by all interested in improving the care of psychopathic patients.

AMBULANCE SERVICE FOR THE INSANE

One of the most important and far-reaching steps in divorcing the medieval legal interference in the care and handling of the mentally diseased has been the recent change in the insanity law expediting and facilitating the admission of the mentally sick to the psychopathic wards. Section two of chapter thirty-two of the Laws of 1909 was amended March 5, 1912, to provide as follows:

> It shall also be the duty of such trustees of Bellevue and Allied Hospitals . . . to see that proceedings are taken for the determination of the mental condition of any such person in the boroughs or county mentioned, who comes under their observation or is reported to them as apparently insane, and, when necessary, to see that proceedings are instituted for the commitment of such person to an institution for the care of the insane; provided that such report is made by any person with whom such alleged insane person may reside, or at whose house he may be, or by the father, mother, husband, wife, brother, sister, or child of any such person, or next of kin available, or by any duly licensed physician, or by any peace officer, or by a representative of an incorporated society doing charitable or philanthropic work. When the trustees of Bellevue and Allied Hospitals are thus informed of an apparently insane person, residing in the boroughs of Manhattan or the Bronx, it shall be the duty of these authorities . . . to send a nurse or a medical examiner in lunacy, attached to the psychopathic wards . . . or both, to the place where the alleged insane person resides or is to be found. If, in the judgment of the chief resident alienist of the . . . psychopathic wards, or of the medical examiner thus sent, the person is in immediate need of care and treatment or observation for the purpose of ascertaining his mental condition, he shall be removed to such psychopathic ward for a period not to exceed ten days, and the person or persons most nearly related to him, so far as the same can be readily ascertained by such trustees, . . . shall be notified of such removal.

TABLE 3.—ADMISSIONS UNDER THE SEVEN DAYS' TEMPORARY CARE LAW OF MASSACHUSETTS

Admissions in 1911 (after June 4)	92
Admissions in 1912 (Psychopathic Hospital opened June 24)	416
Admissions in 1913	897

Of these 897, 590 were sent to the Psychopathic Hospital, the others to other institutions of the state.

These two examples — the increase in voluntary admissions and the increase in temporary care admissions — are enough to show what an engine of prophylaxis a psychopathic hospital, backed by proper laws, may become. Accordingly the Psychopathic Hospital deserves reckoning as one of the major departments of the prophylactic division of mental hygiene.

Every person admitted under the voluntary law is entitled to consider himself in one sense a free man, quasi-sane, or at least not antisocial, unless on his application to leave, steps are taken to commit him. Again, every patient temporarily cared for is entitled to consider himself as not yet *proved* insane, although he may be aware that alienists are examining him. Even if he is eventually to remain in an institution, he may well become such inmate voluntarily and, even if committed against his will, he has at all events the satisfaction of knowing that he was given a good chance of avoiding commitment by a period of hospital observation.

The proof of the pudding is the real object of my present communication. I have chosen to investigate the large "not insane" group of the Psychopathic Hospital's discharges to ascertain, if possible, just what benefit to the patient and to society has accrued from passing these persons through the psychiatric filter. How much a factor in *successful* prophylaxis are these "not insane" discharges?

For the moment, I do not deal at all with so-called "recovered" or "improved" cases that have been judicially recognized as insane. Of these recoveries there were in a period of about twenty-one months 195, and of "improved" cases, 177, or a total of 372 among 2,500 discharged from a hospital largely diagnostic in its functions, and with an average duration of hospital treatment not over three to four weeks.

I wish rather to consider among these first 2,500 discharges a group of 570 other cases regarded as not insane, and in fact as never yet insane. This group forms between a fifth and a quarter of our discharges (23 per cent.), calculating on a basis of our first 2,500 discharges. Of these 570 "not insane" discharges, 405 can be briefly disposed of from the diagnostic point of view as in Table 4.

TABLE 4.—"NOT INSANE" DISCHARGES WITH ASSIGNED DIAGNOSES

Feeble-minded *et al*	179
Psychoneuroses *et al*	100
Alcoholism	44
Epilepsy	39
Somatic and non-mental diagnoses	27
Syphilis	17
Brain disease of various types	10
Chorea	6
Paralysis agitans	2
Acromegaly	1
Other diagnoses	6
	431
Diagnoses in more than one case	26
	405

The significance of most of these figures is obvious. I will dismiss the feeble-minded group (179 cases), remarking that at least fifty-one of these may properly be regarded as belonging in the group of so-called "defective delinquents," using this term to include many who have never been considered by courts and who might better be termed potential delinquents. There promises to be a mine of criminal-anthropologic data among these cases, the more so in that alienists have not ever intensively studied large groups of these cases by the best methods in hospital wards. Reports should eventually become available of a large group of cases studied not merely with the Binet-Simon tests, but also from the point of view of the new "point scale" of estimate now about to be published by Robert M. Yerkes, psychologist to the Psychopathic Hospital. Meantime the value to the community of these examinations at a center having the stamp of authority is certainly large. Since a majority of these cases fall in the higher grades (by the Binet-Simon and other standards) it is possible that the amount of community prophylaxis thus afforded will eventually reach a high level, since the most difficult community problems in the field of feeble-mindedness are recognized on all hands to lie with the higher grades of feeble-mindedness.

I cannot forbear mentioning here, without developing the point, that a considerable advantage is accruing to the local social-service public from the making clear to them that the terms "feeble-minded" and "insane" (or, better, "psychopathic") are not terms equivalent to "should be sent to an institution!" With the organization of social service in various centers there has developed a certain tendency to bureaucracy, and to the conception that medical groups are institutional groups. Of course this runs counter to the underlying principles of social service, which, I take it, starts from a foundation of differentiated individual service. The basis of differentiation among psychopaths needing social service is very likely to be medical and not economic. Accordingly I feel that such an institution as the Psychopathic Hospital is likely to be salutary

in any social service situation where bureaucracy tends to lift its head.

I will, secondly, dismiss the group of alcoholics (forty-four cases), remarking that they represent (*a*) certain cases of acute nature (considered *not* to be examples of delirium tremens or of the so-called pathologic intoxication or of any other form of mental disease, but) having a variety of mental symptoms demanding temporary care, and (*b*) certain cases of a chronic nature with acute exacerbations threatening to become antisocial. The advantage to the community of this service is obvious. The patients in question would formerly have gone to jail doubtless in most cases. The number of such cases does not represent the volume of the social problem they present. I will dismiss the topic, referring the interested reader to the conference on medical and social aspects of mental disease due to alcohol,[1] held at the Psychopathic Hospital before the legislative commission on drunkenness, Nov. 24, 1913. Article VI, from that conference report, by Dr. A. Warren Stearns and Miss Mary C. Jarrett, deals with the after-cure and moral suasion work of the Psychopathic Hospital. Although alcoholism forms only about one-ninth of the Psychopathic Hospital's problem, yet much attention has been given to the topic, and thirteen communications have been made to medical journals about it, twelve of which appear or are referred to in the report of the conference above mentioned and the thirteenth (on the treatment of deliria) has been published by Donald Gregg.[2]

Epilepsy (39 cases), syphilis (17 cases), various types of brain disease (10 cases), chorea (6 cases) and 9 miscellaneous cases need not be especially considered here, despite the attractive vistas which several of these fields bring up to the alienist, who is apt to feel that the mental complications *of the early phases* of various nervous and allied disorders have not been given adequate attention by neurologists untrained (at least in any modern sense) in psychiatric method.

Perhaps a group of 27 cases, tabulated as having "somatic and non-mental diagnoses," deserves more particular attention than I can at present give. I find 8 among these belonging to the in all ways difficult group of the morphinists, 5 to the group of dysthyroidism, 4 senile cases thought not to be psychopathic, 2 cases with some mental symptoms in advanced tuberculosis, 2 cases with mental symptoms in typhoid fever, etc.

I have reserved a group of 100 cases of psychoneurosis for consideration as a problem of great importance in any campaign of mental prophylaxis. The group was made up as follows: hysteria, 45; neurasthenia, 20; psychoneurosis not further specified, 20; psychasthenia, 10, and psychopathic personality, 5. I suppose the question uppermost in the alienist's mind as to this group is how far these cases are open to individualistic, and how far to specific or more general, lines of treatment. I take it that for the present it is well to give the patient the benefit of the doubt and individualize treatment as far as possible, although I hardly feel that the point has been proved. As between the therapeutic method that goes under the name "psychanalysis," the method called "rest treatment," the "work treatment," and what might be called calisthenic treatment, it is a question whether science can yet say that one treatment is always better than others, or that one treatment is good for Patient A and another for Patient B, or that no one of the methods is of avail in certain cases.

I know of no accurate estimates of the volume of such disease in the community. Here it seems as if about one-quarter of the not insane (but in some way psychopathic) cases resorting rather freely to the Psychopathic Hospital belong to the psychoneurotic group. It is natural to suppose that the severer examples of the group are the particular cases which reach the hospital. If the total 2,500 cases may be regarded as somewhat fairly representating the serious forms of mental disorder (all types) in the community, then one in twenty-five of these belong to the theoretically so interesting and practically so important group of the psychoneuroses.

Before the community plunges into the program of building public sanatoriums for this class, more figures should be available. Perhaps if we should combine certain convalescents from insanity with these psychoneurotics, we could justify on numerical grounds the establishment of such sanatoriums, having after-care and preventive functions. It seems doubtful whether the public funds will soon become available for this purpose, however worthy; but it would seem that private appeal could be very legitimately made for such institutions. It is a curious thing that some of the richest privately endowed institutions for the insane in this country have not seen their way to the establishment of such sanatoriums and preventoriums for the poor. Instead, we often find these endowed institutions successfully pushing claims for large private benefactions, but operating their wards on a system of high-priced treatments. Free beds for cases of this group are often hard to discover, at all events hard to find *empty!*

All that a psychopathic hospital, situated in the midst of a medical center (for the sound reason that otherwise not scientific men enough can be gathered for proper diagnostic work), can do with a problem like that of the psychoneurotics is to:

1. Effect certain cures of the magical order (though how permanent these are is a question, and how good for the patient's utlimate fate);
2. Apply "rest," "work," calisthenic and similar treatments (which unhappily can often not be carried on long enough for economic reasons);
3. Enlist private interest in individual cases requiring longer attention (methods of social service in discovering special private sources of aid);
4. Persuade suitable patients to submit to voluntary admission to state insane hospitals, there to stay for a time under rural conditions, enlisting the interest of resident physicians and overlooking the fact of association with the frankly insane (the cottage type of institution planning greatly helps here, because of the possible differentiation of cottages for psychoneurotics);
5. Endeavor to discover underlying causes.

If such a sanatorium for psychoneurotics were to be founded, it would be well not to divide it equally between the sexes. The psychoneurotic hospital should have more beds for women. Table 5 gives the incidence of 100 psychoneuroses according to sex in which twenty-nine patients were male and seventy-one female.

Tables 6 and 7 show that half of the psychoneurosis patients came to the hospital between the fifteenth and thirtieth years, and a little over one-half of the female cases (37:71) were between those ages.

1. Boston Med. and Surg. Jour., Dec. 25, 1913, p. 929.
2. Gregg, Donald: Modern Hospital, 1914, ii, No. 5.

TABLE 5.—SEX DISTRIBUTION IN ONE HUNDRED PSYCHONEUROSES

	Male	Female	Total
Hysteria	6	39	45
Psychoneurosis	7	13	20
Neurasthenia	9	11	20
Psychasthenia	4	6	10
Psychopathic personality	3	2	5
	29	71	100

TABLE 6.—ATTACKS AT DIFFERENT AGES

Ages	Hysteria	Psychoneurosis	Neurasthenia	Psychasthenia	Psychopathic Personality
6-10	1	0	0	0	0
11-15	5(1♂)	0	0	1	0
16-20	11(2♂)	2	0	0	1
21-25	15(1♂)	2(1♂)	1♂	3(1♂)	0
26-30	6(1♂)	6(3♂)	1♂	1♂	1♂
31-35	4(1♂)	2(1♂)	5(1♂)	2(1♂)	1♂
36-40	2	2	4(2♂)	1	0
41-45	0	3(2♂)	2(1♂)	0	1
46-50	1	2	4(1♂)	0	0
51-55	0	0	1♂	2(1♂)	1♂
56-60	0	1	2(1♂)	0	0
	45	20	20	10	5

TABLE 7.—AGE AND SEX DISTRIBUTION OF PSYCHONEUROSES, ETC.

Age	Males	Females	Total
6-10	0	1	1
11-15	1	5	6
16-20	2	12	14
21-25	4	17	21
26-30	7	8	15
31-35	5	9	14
36-40	2	7	9
41-45	3	3	6
46-50	1	6	7
51-55	3	1	4
56-60	1	2	3
	29	71	100
16-30	13	37	50
Under 16	1	6	7
Over 30	15	28	43

Certain points about the syphilis index and the sex distribution at different ages have been placed in Paragraphs 11 and 12 of the summary.

SUMMARY

1. In the prophylactic division of mental hygiene the matter of voluntary admissions to hospitals for the insane holds a primary place; their number is increased by the plan of supporting such at the public charge just as committed cases are supported, and is still further increased, and even doubled, by the provision of a modern psychopathic hospital (increase from 8 to 16 per cent. of the total of voluntary and committed cases, experience at Boston Psychopathic Hospital).

2. A second prophylactic measure is the provision of proper temporary care for persons suspected of mental disease, as according to a unique Massachusetts temporary care law (first operative in 1911; see text). This provision has been eagerly employed in Massachusetts, more than doubling the number each year since enactment. The Psychopathic Hospital is receiving about two-thirds of all those thus received in Massachusetts, 1913.

3. Many important prophylactic questions relate to those thought to be insane but not proved to be. In this psychiatric borderland also lie many questions between insanity and feeble-mindedness. A large "not insane" group, namely, 570 cases among the first 2,500 discharges from the Psychopathic Hospital, has been reviewed to discern the general features of this psychiatric borderland of diagnosis.

4. Consideration is omitted of 372 additional cases regarded as recovered or improved after attacks of mental disease, although in one sense these cases are open to prophylactic measures, since the occasional review of these cases by a follow-up system must tend to help society, and may help the individual.

5. Of the 570 not insane cases, 179 were cases of feeble-mindedness of various grades, largely of the higher grades and including a large number of the so-called defective delinquents (more than fifty). In this connection it often becomes necessary to fight a bureaucratic tendency among social workers who tend to proceed on the erroneous assumption that an insane or a feeble-minded person belongs by definition in some public or semipublic institution.

6. The numerically next largest group is that of psychoneurotics (100), who are largely female (71), especially the hysterics (39 female in 45). Consideration is given to the idea of a public sanatorium or preventorium for such persons with far larger provisions for females than for males. It is thought that these cases, forming at least a twenty-fifth (probably more) of all mental cases in the community and at least a fourth (perhaps somewhat more) of all not insane mental cases, might perhaps warrant, if combined with the convalescents, the establishment of a public sanatorium to be run on economical lines in the country.

7. It is largely the great expense (from $20 to $25 per week) of caring for these cases in a centrally placed psychopathic hospital or psychiatric clinic which determines the idea of a rural public sanatorium; for psychotherapy (in whatever form may be determined to be valuable), rest treatment, work treatment and calisthenics, to say nothing of dietary and other general measures, can be as well, though more expensively, carried out in the urban psychopathic hospital.

8. Of the 570 not insane discharges, 165 were not classified as showing any particular form of mental or other defect, although it must be emphasized that each of these came for psychodiagnostic reasons and was admitted under a special form of law. One even was a case regularly committed under judicial procedure but later determined to be not insane, and nine others came under judicial authority by virtue of certain other laws not commonly used.

9. Of these 165 not insane discharges, ninety had been admitted under the temporary care law, unique in Massachusetts, referred to in Paragraph 2 (except in fifteen instances in which a somewhat similar law, operating for the city of Boston alone, was employed). With respect to these persons it must be emphasized that their problems would not have been so easily solved under any other procedure. Examples of such problems are question of paraphrenia systematica, question of hysteria, question of defective delinquent, question of epilepsy, etc.

10. Of the 165 not insane discharges, sixty-five either resorted voluntarily to the hospital or were pursuaded to become voluntary patients. It is evident that, in an increasing number of instances, persons realize or can be made t realize the possible psychopathic nature of their difficulties and come almost eagerly even to a public institution.

11. About 13 per cent. (18 in 136) of these persons who were discharged as without active symptoms of mental or other disease yielded positive Wassermann reactions in their serums. The interpretation of this fact is doubtful. The percentage in the males was 10 (7 in 65), in females 16 (11 in 71).

12. Two-thirds of the patients aged 6 to 15 were boys (21 boys, 10 girls), but of those aged 16 to 25, there were more than four times as many women as

men (10 men, 45 women). From 26 to 40, the sexes are about evenly distributed (17 men, 19 women). Then males preponderate (28 men, 14 women). Thus, women may be thought to get into suspicious psychopathic circumstances which later resolve, much more often in the period of adolescence, males somewhat more often in late boyhood and in postadolescent years. Therein lodges a problem in prognosis which if settled would greatly aid the alienist, particularly, in making certain social decisions.

13. It is clear that the influences which are bringing the not insane to the Psychopathic Hospital in Boston are bringing them there at comparatively early ages, and often (especially the females) in adolescence. The community's interest in the question of feeble-mindedness and the social worker's often justifiable desire to institutionalize her wards are powerful factors in this resort for diagnosis to a state institution. The physicians in the community are almost to a man, I believe, pleased with the increasing facility with which, under the laws mentioned above, some of their most difficult problems are solved. Time was when almost the only recourse in determining absolutely whether a patient was insane was to adjudge him insane and release him afterward if a mistake had been made. To overcome this difficulty, various devices have been adopted in the more highly civilized of our states. The Massachusetts arrangements are of particular interest to those who may not have been able as yet to civilize their own states in these directions.

74 Fenwood Road.

ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. PUTNAM, GREGG AND SOUTHARD

DR. D. J. MCCARTHY, Philadelphia: I believe that the social service idea, which has been promulgated by Dr. Cabot, began as a medical idea and then switched over to special social service along modern lines. The difficulty lies in the idea of placing a non-medical person in a position of responsibility to determine what shall and shall not be done with certain individuals. Social service is a medical problem necessarily, and we must look to the future social service work for such careful investigation of families and houses as was done in the crusade against tuberculosis in Berlin. Medico-social service by large corporations is becoming practical everywhere, as in large department stores where thousands of young women are employed. If all such could be prevailed on to adopt social service, and if we had such an institution as Dr. Southard suggests, which is not purely charity, where the individual could be treated for one dollar a day, where the young woman losing 15 or 16 pounds a month progressively and showing nervous symptoms, irritability, etc., could be taken before she breaks down and where there would be no stigma of insanity, but simply the recognition of a condition of overwork, such an institution would be of immense help in the prevention of psychoneuroses. If these patients are not seen early before the break, when the symptoms are developing and the individual is losing efficiency, the most important factor in the prevention of psychoneurosis will be lost. Frequently patients come to us after the break has occurred, impelled by social reasons, but even in a mild case of mental disease the patient is not well in six weeks, and danger lies in putting him back to work in three weeks. It is a matter of from six months to two years before the nervous system is sufficiently stabilized to put that person back where he can do good and efficient work.

DR. M. A. HALLOWELL, Vineland, N. J.: I have been handicapped because certain fields that belong to physicians have been relegated by physicians, I am sure not wilfully, but by default, to others. Certain phases and factors, I feel, are extremely important. One is the field work. It is being done throughout the United States by non-trained workers. As neurologists do you not think that a psychopathic institution where medical men shall be specialized for this particular work and equipped to do the work properly, is much needed? At present the workers are absolutely untrained; they are people who are social workers with an absolute lack of knowledge of medical subjects; they do not know how to bring out the leading factors in the etiology of disease. It is most important that medical people should get together and make it possible to put trained medical workers in this field.

Another extremely important point is that, in the United States, juvenile courts, or the child-welfare bureaus in connection with juvenile courts, are making the tests as to the relative normality of the children. Is it physicians and psychiatrists who are committing these children to the institutions for the feeble-minded, or prescribing treatment when the children are placed on probation? It is not physicians, it is not people who are qualified to do this work. Physicians in general are accepting reports from these bureaus not presided over by physicians; they are taking these reports as definite and conclusive, whereas, patients are committed to my institution, as to others, who are absolutely normal, but whose accustomed environment has been taken away from them; they have hardly become adjusted to the new environment, and their reaction is not pathologic, but the pendulum is swinging too far. The lay people who make these tests, who are responsible for this work, and who are doing it to the best of their ability because physicians are not taking it up, are in many instances mistaking those children with anti-social instincts for feeble-minded. I hope that physicians in general, the American Medical Association, and the neurologists of the country, will try to see that the field workers who make these family histories and beautiful charts shall be people who are qualified; that when a type of the feeble-minded or epileptic or alcoholic, or whatever type may be charted, is presented, we may be perfectly sure that it is a true type. We are not perfectly sure, with the charts in existence at the present time, as to whether or not most of the records are true. I know the handicap that physicians and neurologists suffer because there are no trained physicians to do this work. It is a wonderful opportunity for young physicians, and for psychopathic institutions to train young physicians to take up this work.

DR. WALTER B. SWIFT, Boston: I am glad to see the weight of Dr. Putnam's paper placed on synthesis and sublimation. Up to the present the psychanalytic movement has been mostly description, analysis, interpretation, with very little said about what to do, how to synthesize, when to sublimate, and who should do all this. In the first part of his paper Dr. Putnam has now swung the emphasis over to this utilitarian side. And I trust that from this date the balance will stay thus tilted. A word, then, is apropos as to the source of synthetic methods. Dramatic art contains more synthetic methods, that is, in the norm, than any other field of study I know. I have a personal interest here. There is more good psychology remaining still scientifically uninvestigated in the field of dramatic art than anywhere else. Students of synthesis can learn much from that field. A good idea of the intricacies of syntheses there contained can be grasped by picturing in the imagination for a moment all the varieties of synthetic processes that are necessary for the personification of another's personality.

I differ with Dr. Putnam when he says that the symptoms of the psychosis and the psychoneuroses are the patient's efforts to recover. Granted that every organism has an innate tendency to right itself when diseased, these symptoms appear to be more than that—a sort of let-up of certain previously controlling inhibitory centers, more of an uncontrolled expression than a controlled expression aiming at recovery. It sometimes almost seems true that some of these disease forms may have an etiologic basis in the brain anatomy—in the inherited variation of size of cell nuclei—so that a small area getting easily tired or depleted, lets up its inhibitory control under stress of somatic disease or environmental pressure and away the combination flies. Why could there not be, then, between the psychanalytic interpretation and the neuro-

pathologic interpretation also an anatomic that would satisfy both of the others' claims, at least in some measure?

Dr. Gregg's paper has given some new and valuable facts that may be utilized to advantage in prophylaxis, but why does he call certain factors essential, and just what does he mean by a fetal cause for the psychoses and psychoneuroses.

Dr. Southard's paper illustrates the creditable type of work that the psychopathic hospital is doing. A patient in the outpatient department is seen by from six to eight specialists and is then turned over to one of them for treatment. This is quite different from the usual out-patient department, where only one man, or perhaps two, see each patient. I concur with Dr. Hallowell in her statement. I work in a clinic in which histories are taken by a lay worker, and evidence shows that many of her terms are absolutely unreliable and need investigation before they can be used as the basis of any scientific research.

DR. W. T. COUNCILMAN, Boston: One of the most striking things which has been accomplished in medicine in the last thirty-odd years is the breaking down of the fence which formerly surrounded those diseases the manifestations of which are psychic alterations. That is a very important thing for all of us. It has benefited pathology because in pathology we have suffered in the past from the fancy that these diseases were outside of our investigation, that they constituted a province by themselves, that they had their own methods of investigation, etc. The work in pathology is greatly benefited by the knowledge of the pathology of the brain in particular, because in the brain we are able to study perhaps better than in almost any other part of the body, and appearing under new forms, the resistance of the tissues, their compensation, their interrelations and pathology, and also, I am sure, physiology and therapeutics have gained correspondingly. One of the things which this Section has done seems to me to be of very great importance, and that is the asking that mental hygiene be considered as one of the subjects to be included in the work of the Council on Health and Public Instruction. This council is, I think, one of the most important of the councils of the association, and I hope to see mental hygiene form a prominent part of the work of this council.

DR. HUGH T. PATRICK, Chicago: I may have more or less of intellectual asynergy, and I strongly suspect I am a fine case of mental atony; but what rôle would Dr. Putnam assign to parents and teachers in the application of the discoveries or contributions of psychanalysis to child psychology, and to the proper bringing up and development of children. I did not understand it as clearly as I should like to, and I think it should be made particularly clear to others than myself. If I remember correctly, he spoke of "teachers and parents applying the principles of psychanalysis." If Dr. Putnam means that parents and teachers are to employ the methods of psycho-analysis in the bringing up of children who are more or less abnormal, I wish very decidedly to express a dissenting view. I believe that any discoveries which psychanalysts may make in the psychology of children, the laws of development of children, and the principles on which children should be brought up, should be utilized by the proper persons. Dr. Putnam should make this particularly clear because I believe that in talking about the value of psychanalysis in these matters we are liable to mislead some people and to commit a lot of injury rather than to contribute to our benefit and to the benefit of our children. I believe that parents and teachers should be told what they are to do, very much as we give a patient a prescription and tell him to take that three times a day, or as we would prescribe exercise or anything else for patients, particularly in questions relating to nervous or psychopathic patients (and I might say that, unfortunately, many psychopathic children have psychopathic parents), we must be cautious in admitting the patients to our own mental operations. These people are already too introspective, they are already too disturbed to employ what they call their reason and what they consider their knowledge in these matters, and I believe practically, as a matter of experience, that in dealing with these cases it is better on the whole to be rather dogmatic and tell them, This is what you shall do. I have no objection to giving a rational and mentally competent individual an insight into his own case. I think in some cases it is a wholesome and effective measure; but what I would decidedly oppose is any encouragement whatsoever for parents and teachers to indulge in the procedure of psychanalysis in the case of children or others. This is perhaps along the line of Dr. McCarthy's remarks, that social service had better be in the hands of experts than in those of well-meaning laymen and women. Some of us can remember when hypnotism was employed more or less by physicians with more or less good effect, and even yet we find parents trying to usurp the doctor's place, who try to employ hypnotism to control nocturnal enuresis, for bad habits, and for insomnia in their children. I believe that this rôle of the parent and teacher in the psychic development, or the neurologic or psychologic treatment of the child, should be done away with. The tendency of many persons is to take abnormally large and abnormally constituted doses of mental treatment. And I would no more put into their hands as powerful and complex a remedy as psychanalysis, than I would allow them to prescribe poisonous drugs or perform operations.

DR. FRANK P. NORBURY, Springfield, Ill.: This symposium indicates the advance being made in mental hygiene, especially in the constructive policies of prevention, and emphasizes the importance of genetic psychology and the genetic theory of education as applied in preventive mental medicine. Psychanalysis, too, is important in child life. The child is the product mentally of three factors, namely, heredity, environment and education. We can reduce these to heredity and environment. Environment is not only what one sees and touches, but also what is absorbed into one's self—this we call education, but it really is a product of environment. Environment then is one of the primary factors in the study of the child. Holmes says that "a child cannot be kneaded like dough, nor hammered like iron, but can be trained like a vine on a trellis." Dr. Patrick is right; a neurotic child should not be trained in a neurotic environment. Such home influences are projected into the life of the child and into succeeding generations. I have followed many such individual problems. They are formidable, deep and far-reaching in character formation. These factors should give physicians more concern than they ordinarily do. They are to be studied in the home rather than in the consultation room. Dr. Putnam assigns equal importance to mental and physical factors. We should regard selection from the point of view of biology and sociology. Psychanalysis, too, should be given its full value. The critics who disregard it will find that it is not only a psychologic but also a biologic factor in preventive education and in the problems of selection. We cannot dominate selection even by peremptory laws. The child must be so educated that when the time comes that the question of marriage, etc., arises, the young people will have the knowledge which will enable them to help solve these very important questions of eugenics. The outpatient service as outlined by Dr. Gregg heralds the permanency of the mental first-aid service. It also shows how important it is to know the family and the individual outside of the hospital. We all know how inadequate is the knowlege concerning the patient, and that the real causes in mental disorder extend far beyond the assigned causes as given in hospital histories. The voluntary admission service in Boston is a movement which should extend to every state. Illinois has a voluntary admission provision, also a ten-day observation clause in its law. Voluntary admissions have not been sought as freely as they should be. We have more voluntary admissions in the rural districts, while in the metropolitan districts, especially in Cook County, the commitments are crude, superficial and far behind the service as found in many other counties in the state. I believe the time will come when we will have institutions for the state care and treatment of the psychoneuroses. This problem will be a financial one. The state care of the insane costs, in Illinois, about $175 a year per capita. This cost does not consider original investments or interest

on the same; it is simply for maintenance. The cost for treatment and care of psychoneurotic cases will be more. I know from my own experience that such patients involve an expense of at least $18 per week for actual care.

DR. A. C. GILLIS, Baltimore: Both Dr. Southard and Dr. Gregg brought out very clearly the fact that in dealing generally with the great class of psychoneurotics there are many important etiologic factors to be studied. We should look on all those factors from the broadest possible point of view and not be led astray in our enthusiasm for some new theory. It is true, as Dr. Hallowell stated, that we rely to a great extent to-day on lay workers for much of the information relative to the study of etiologic factors in insanity. Cases are sometimes classified as imbeciles or degenerates because of incomplete tests by lay workers, when the individual may be a foreigner who has not become adjusted to his new surroundings in this country, or when the home surroundings of a child are such as to make it practically impossible for full mental development to take place, or again, when physical deformity or disease has prevented proper development. We should have physicians trained in the study of heredity and insanity. There is a tendency nowadays to have the psychologic worker one who has taken a Ph.D. degree, and who knows little or nothing of medicine. That may be well enough, when the worker is a member of the staff of a psychopathic institution where the patients he examines can be studied by competent physicians, but it is not advisable when cases are seen outside the clinic and are not properly supervised from the medical point of view.

DR. JAMES J. PUTNAM, Boston: Several of the speakers have referred to these psychopathic disorders as being hereditary, and we all know that, in the minds of many persons, to say this is the equivalent of saying that the patient is to be classed as a "degenerate." Of course it is true that these patients are "burdened," but it is still an open question in every case how far improvement may be secured through a psychanalytic treatment, and also, of course, how far it might have been secured in the case of the parents or other ancestors. This point is deserving of attention; for even at the best these patients have anxiety enough to carry, and if it can be made clear to them that their forbears might have been helped by a treatment similar to that which is capable of helping, even if not of curing, them, they should be given the benefit of this consideration. I cannot agree with Dr. McCarthy that the social-service work should be taken away from properly qualified women and given over to young physicians. In the first place I do not think much of $500 doctors, and do not think we could find many first-class men who would be willing and able to do first-class work of this character for such a sum. Furthermore, I think that the work itself is of a kind that women are in some respects better qualified for than men. On the other hand, it seems to me that it is the duty of those who have this sort of work in charge to see that the women workers are well trained and do their work properly. With regard to Dr. Swift's statements, I do not think that the ethical training of patients is strictly within the province of the psychanalyst. It is so difficult to use psychanalytic methods that they should be strictly adhered to for the present. On the other hand, it seems perfectly proper for psychanalysts to have the possibilities in the way of "sublimation" clearly before their minds. In answer to Dr. Patrick, I am not proposing anything so foolish as that parents or teachers should use psychanalytic methods, but only that they should gradually learn something, through their own physicians, of psychanalytic principles. Neither am I an advocate of systematic sex hygiene teaching in schools. Reforms in parental and school education are greatly needed, but come slowly. Parents should learn to be as broad-minded and as sympathetic as possible, and should become intimate with their children and learn to understand the meaning of and the tendencies underlying their acts. Take masturbation, for example. Parents will beat their brains in trying to stop this habit, but it rarely occurs to them to try to find out what masturbation really means in a broad sense, and to find the mental tendency which leads to it. Lying and stealing by children should not be simply punished, but the attempt should be made, in each case, to find out what they mean.

DR. DONALD GREGG, Brookline, Mass.: The discussion as to the excellence of the work of social workers brings up the same old problem that Dickens touched on regarding the excellence of veal pie: "It depends on the woman as made it." There are some social workers who can do excellent work, and others whose work is useless; but the amount of work that is to be done in a large clinic is so vast that I can see no possible harm in getting assistance from lay workers. They should work under proper supervision, but I can see no reason why the work of taking certain histories cannot be done as well by lay workers, if the physician follows it up closely, as by a medical student. If the worker seeks to bring out simply the facts, well and good; but she should not put down on the record her own personal deductions. As regards the work of Ph.D. men in psychanalysis, these men should also work in close conjunction with men who have had medical training and have a knowledge of somatic factors. Analyses made by a man who does not know the difference between normal and abnormal physical characteristics and symptoms are useless unless done in conjunction with a medical man. The services of such men are efficient in hospitals, but I cannot believe that they should carry on this work outside of hospitals except in conjunction with medical men.

DR. E. E. SOUTHARD, Boston: I was glad to hear Dr. Norbury commend my remarks concerning public preventoriums for psychopathic cases. The erection of such preventoriums is doubtless a question of budget. Such institutions are being built in certain parts of the world; but it is a question how soon our own legislatures can be prevailed on to provide for them. The Section on Nervous and Mental Diseases should help the work. Certain innocent remarks of mine seem to have precipitated a discussion on social workers which is a little unfavorable to them. In my paper I did endeavor to reassert the right of the physician to control in medical questions, and I called attention to the overenthusiasm of certain social workers who incline to the belief that they know more than do the physicians about certain problems. Nevertheless, I have the greatest belief in social workers and admiration for their work. So far as I have been able, I have always advocated the employment of laymen and laywomen in many capacities, both as saving time and money and as an aid in the dissemination of medicosocial knowledge in such fields as that of charity and correction, of eugenics, of sex hygiene and the like. Of course, heredity charts obtained by lay-workers are subject to error, like the weather bureau reports, but it is a question whether they are more subject to error than medical histories collected by physicians. For example, we employ a clinical historian at the Psychopathic Hospital in Boston, through whom I am inclined to think we often obtain more effective, complete and unbiased accounts of certain cases than through the physician or intern who observes some special point early in taking the history and then pursues that point one-sidedly without reference to other important features. There are, indeed, sides of medical histories which the physician can best investigate, but the properly trained lay-worker can be taught to understand what points to leave to the physicians. Let me then hasten to correct any supposition that I underestimate the value of lay work in our field. We must extend lay work in medicine by way of extending the medical sensorium, but the motor or pragmatic decisions in these problems should be left to the physician. Naturally, the social worker tends to regard the physician as a specialist of service to her in her social decisions. The physician, on the other hand, tends to regard the social worker as a specialist to aid him in his decisions. As a matter of fact, the physician is or should be himself a social worker to start with, hence, his decision in a given case is not merely a medical decision, but, in the nature of things, a medicosocial decision.

Lupus Institute in Vienna.—The name of the street in Vienna on which is located the new institute for the treatment of lupus has been changed to Finsen Street.

EFFICIENCY OF SODIUM CHLORID IN THE THERAPEUTICS OF BRIGHT'S DISEASE

A FURTHER CLINICAL STUDY*

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In September, 1912, in the Section on Medicine of the Medical Society of the State of Pennsylvania, which met at Scranton, I reported my experience with the use of sodium chlorid in the prevention and in the treatment of nephritis and edema. My conclusions as to the efficiency of this agent, employed as a normal solution by hypodermoclysis and by the drop method by rectum, were based on purely empyrical and clinical data. The latter included three cases of nephritis, two of typhoid fever, three of scarlet fever and one of infantile dysentery. I at that time observed that "the results in each instance were so strikingly uniform and identical that one cannot escape the conviction that they appear to be more than coincidental and to depend on definite biochemical phenomena which were determined by the physiologic activity of the therapeutic agent employed."[1] Then as now my results appear to me clinically to confirm the experimental observations of Martin H. Fischer[2] with reference to the non-toxicity of sodium chlorid in cases of nephritis with especial reference to its effect on water retention (edema) and on the kidney substance itself (albuminuria, cloudy swelling and cast formation). All cases in which this agent was employed, save one very severe instance which will again be mentioned, were relieved. It may not be out of place to remark that my original observations were made before I became acquainted with Fischer's work so that my results appear to me to be more valuable as confirmatory data.

I wish again to speak simply as a clinician, being without animal, experimental or other memoranda, and desire only to add to the number of cases previously submitted. My hope is that, perhaps in discussion, more convincing light may be thrown on the not yet settled questions as to whether sodium chlorid induces water retention, as to its influence on the actual kidney condition in nephritis, on the symptoms of the disease in general and as to the real nature of nephritis and edema.

In this connection it may be interesting to review briefly some of the theories as to the production of edema. The most noteworthy clinical contribution has been made perhaps by Widal and Javal.[3] Their work is well known and has been accepted by many clinicians as essential to the correct therapeusis of nephritis. My own experience, however, has not been in accord with their teaching, that an edema may, in a nephritic, be made to come and go by the administration or by the withdrawal of sodium chlorid. On the contrary, as a later reference to my cases will demonstrate, not only is this agent non-toxic to the nephritic or to the infant suffering from the so-called idiopathic edema of gastro-intestinal origin, but it is helpful and even curative. It has also been noted, personally and certainly by others as well, that the administration by hypodermoclysis of warm normal salt solution to marantic infants with subnormal temperatures or to wasted infants who have been dehydrated and demineralized as the result of a severe summer diarrhea (intoxication) has been followed by prompt absorption and elimination of the fluid and that edema has not ensued. Jacobi[4] has for years advocated the administration of additional sodium chlorid in the milk formula. I have uniformly followed his teaching and in no instance have I seen edema develop in either the sick or the well-feeding patient that could consistently be ascribed to this cause.

The studies of Cowie, on the other hand, would lead one to conclude that sodium chlorid retention is responsible for edema in wasted infants.[5] He believes that the action of the hydrochloric acid in the stomach on large doses of sodium bicarbonate increases the amount of sodium chlorid in the system and thereby induces water retention. I too have seen edema develop in cases of pyloric obstruction in which frequent washing of the stomach with a strong solution of sodium bicarbonate had been practiced. This need not necessarily be explained on the ground of salt retention as it occurs in some infants wasted from this disease and from others who have received neither sodium bicarbonate nor sodium chlorid.

Opposed to the activity of sodium chlorid as the sole etiologic factor in edema, although frequently quoted as supporting this view, are the conclusions of Stoltzner, Wagner, and Cohnheim. Each of these observers regarded the presence of some other substance as necessary. Cohnheim[6] could produce edema in wasted infants by the injection of salt only in conjunction with some local irritant as Spanish fly or the direct rays of the sun. Wagner[7] regarded the presence of a toxin of intestinal origin as a necessity. Stoltzner[8] believed that the edema resulted from the irritation of the blood-vessel walls by a toxin which likewise irritated the kidneys and resulted, as well, in albuminuria. The conclusions of these observers, especially those of Cohnheim and of Stoltzner, appear to forecast, as it were, and at the same time to lend support to the contentions of Fischer, that the edema and the albuminuria depend on general tissue acidosis, not excepting the kidneys. The effect of the acid in the latter instance is to cause the solution of the gelatinous colloidal substance of which the kidney is composed. This results in albuminuria.[2] His simple experiments as to the effect of non-acidulated and of acidulated solutions on the solution of fibrin and of gelatin and as to the restraining effect of the mere presence of neutral salts, notably sodium chlorid, on the dissolving action of the acid, appear to provide ample substantiation for his view that nephritis and its concomitant features, albuminuria, edema, etc., depend on the effect of acid on gelatinous colloidal tissue, and that this effect may be destroyed by sodium chlorid and alkalies. Fischer produced nephritis in rabbits by the injection of acid. He prevented the occurrence of nephritis by the simultaneous injection of acid and sodium chlorid. He cured nephritis in rabbits by the injection of sodium chlorid and sodium carbonate after producing it with

* Read before the Section on Diseases of Childrer at the Sixty-Fifth Annual Session of the American Medical Associatio , Atlantic City, N. J., June, 1914.

1. Lowenburg, H.: Pennsylvania Med. Jour., December, 1912.
2. Fischer, Martin H.: Nephritis, New York, 1912.
3. Widal and Javal: Internat. Clin., 1903; Javal: Ibid., 1905.
4. Jacobi, A.: Therapeutics of Infancy and Childhood.
5. Cowie, D. M.: The Significance of the Pyloric Reflex in True and Pseudopyloric Stenosis in Infants, Am. Jour. Dis. Child., March, 1913, p. 225.
6. Cohnheim and Lichtheim: Arch. Path. Anat., 1887, lxix.
7. Wagner: Deutsch. Arch. f. klin. Med., 1887.
8. Stoltzner: Med. Klin., i; München med. Wchnschr., 1906, liii.

acid. There is also sufficient evidence to support the view that a salt-free diet may actually lead to albuminuria and nephritis. Quoting from the works of G. Bunge, J. Forster and N. Lunin, Fischer explains this phenomenon as due to the low salt content of the body which occurs as the direct result of food without salt and the ingestion of large amounts of water poor in salts. The water washes out the natural salts already present. This salt starvation leads to systemic and renal acidosis and this to nephritis as represented by albuminuria, cloudy swelling, casts, and edema.[9] Sodium chlorid is a conspicuous example of a neutral salt of a monovalent ion. Up to a certain point of concentration this will inhibit the action of the acid and

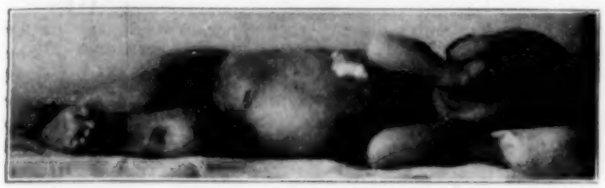

Fig. 1.—Idiopathic edema (Case 1). Pitting of leg and edema of face and skin of dependent portion of abdomen are shown.

together with an alkali will entirely overcome the effects of the acidosis. To the bivalent and to the trivalent ion is ascribed even greater power of inhibition.[10]

With reference to the neutral salts, as represented by Ringer's solution (which contains chlorid of sodium, potassium and calcium) as being responsible for an increase in the flow of urine in experimental nephritis which Fischer produced in three ways (interference with respiration, intravenous injection of acids and clamping of the renal vessels), his statements are so startling that one is almost at first unable to realize their force in view of the universal acceptance of the teachings of Widal and Javal.[11] In whatever manner he produced nephritis he was able to overcome its effects by the use of this solution or by any neutral salt. Also by the use of sodium chlorid solution he enormously increased the urinary output and not only prevented edema but cured it as well.[12] This I have been able to confirm clinically with the use of sodium chlorid solution by hypodermoclysis.

The restraining effects of Ringer's solution and a sixth-normal solution of sodium chlorid on the occurrence of edema is seen in frogs in which nephritis has been produced by the injection of uranium nitrate.[13]

One can have no quarrel with those who differ with Fischer's views and attack his experimental data and conclusions.[14] One cannot, however, peruse his work without recognizing the fact that he has placed himself squarely on record as opposed to the application of the salt-free diet in the treatment of nephritis and to the idea that this and other neutral salts are toxic to the nephritic. He advocates their use as curative and preventive agents in conjunction with alkalies. My experience, as before stated, gained independently of a knowledge of his views, causes me to believe that his work has for some reason not attracted the attention which it merits.

My cases include one case of cardiorenal disease complicating exophthalmic goiter in an adult which I was permitted to observe through the courtesy of Dr. Helen Kirschbaum, three cases of non-renal and non-cardiac edema occurring in emaciated infants, the so-called idiopathic edema or edema of gastro-intestinal origin of infancy and four cases of actual nephritis.

In the cases of nephritis now reported and in those detailed in 1912 no attempt was made to classify them as tubular, vascular or azotemic according to the functional tests described by Schlayer. According to this author in the first variety salt and iodids are slowly eliminated while milk-sugar speedily passes out. In the second type the reverse occurs. In the last a 10-grain dose of urea is but slowly thrown off. In all instances the diagnosis simply of nephritis was made by the clinical symptoms and the urinary findings. Most of the cases followed some acute infection as tonsillitis, scarlet fever and adenitis. Clinically and pathologically also it is probably true that simple vascular (glomerular) and tubular nephritis rarely occur alone but that in every case a combination of pathologic changes exists. These observations are made because all patients practically received the same treatment and in all instances the effects, especially on the edema, were identical. All received large amounts of water orally and hypodermically and in no instance were symptoms intensified from this agent alone which, according to the teachings of von Noorden, provides additional irritation to the vascular system of the kidneys. All patients received as well enormous doses of sodium chlorid and in all instances save one (Case 8) the daily amount of urine was materially increased.

CASE 1.—Boy, aged 6 months, weight 10 pounds, admitted to my service at the Mount Sinai Hospital, May, 1913. Bottle-fed. Previous history has no bearing on present condition. Infant is edematous over its entire body (Fig. 1).

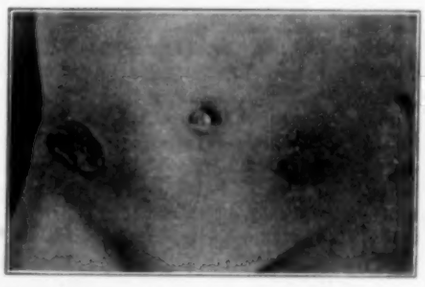

Fig. 2.—Sloughing areas from subcutaneous injection of alkali and salt solution (Case 5).

Temperature subnormal. No cardiac, renal or hepatic disease discoverable. Treatment: Subcutaneous injection of the following solution under the skin below the nipples on alternate days: sodium carbonate, crystallized, 10 gm., sodium chlorid 14 gm., water 1,000 c.c. About 250 to 300 c.c. daily. Edema entirely absent on the eighth day of treatment. Infant now showed all the features of marasmus. Weight 8 pounds 3 ounces. Unfortunately no photograph was taken. There appeared under the right nipple an extensive slough which would not heal and which finally exposed the whole pectoral muscle. The infant died from inanition and exhaustion.

CASE 2.—Boy, aged 9 months, seen in the service of Dr. W. C. Hollopeter and myself at the Philadelphia General Hospital. Bottle-fed. Emaciated and edematous about the

9. Bunge, C.: Ztschr. f. Biol., 1874, x, xi. Forster, J.: Ibid., 1873, ix, 297, 369; Lunin, N.: Ztschr. f. physiol. Chem., 1881, v, 31.
10. Fischer, Martin H.: Nephritis, p. 10.
11. Fischer, Martin H.: Nephritis, p. 134 and following.
12. Fischer, Martin H.: Nephritis, p. 148.
13. Fischer, Martin H.: Nephritis, p. 188, etc.
14. Moore, A. R.: Fischer's Theory of Edema and Nephritis, THE JOURNAL A. M. A., Aug. 10, 1912, p. 423; Edema and Nephritis, ibid., Feb. 1, 1913, p. 345.
15. Fischer, Martin H.: Nephritis, p. 190.

legs, feet, thighs, lower abdomen and face with slight involvement of the hands. No discoverable lesion to account for edema. Temperature subnormal. Received normal saline solution by hypodermoclysis on alternate days under skin of abdomen. This was continued about ten days. Edema was entirely relieved and the infant made an uneventful though protracted recovery.

Case 3.—Girl, aged 18 months, seen in consultation with Dr. J. S. Cohen. Her temperature was subnormal. Bottle-fed. Extremely weak and greatly emaciated. Voluntary movements slow and deliberate. Infant had received various food mixtures. None seemed to do good. Continuous gastro-intestinal disturbance. Bowel discharges were green and contained undigested curds. Child had been treated by several prominent pediatrists without effect. Condition becoming worse daily. Some vaginal discharge. Catheterized specimen of urine shows a trace of albumin and pus-cells. No casts. Urine high colored, scant and acid. Besides the marked emaciation the legs, thighs, lower abdomen and hands are edematous. Infant placed on Blockley buttermilk mixture with solid diet well salted and vegetable broth containing salt, olive-oil by mouth and cod-liver oil by inunction. Ordered to be taken out into the air and sun daily. It was given about 185 c.c. of warm sterile normal saline solution by hypodermoclysis every other day. The fluid was promptly absorbed. The urinary flow was greatly increased, the urine becoming practically colorless. The edema in the hands entirely disappeared as well as from the skin of the abdomen and thighs. The edema of the feet was not influenced to any great extent. A second examination of the urine revealed practically no abnormalities. It was impossible, however, to control the digestive disturbances. The number of bowel movements were increased and the child died suddenly from exhaustion about ten days from the beginning of treatment. This case, however, clearly demonstrated the non-toxic influence of sodium chlorid and large amounts of water in the presence of edema. The fatal ending of the case does not lessen the importance of this fact.

Fig. 3.—Acute nephritis. Marked edema of body (Case 8).

Case 4.—As in the previous case there was a fatal ending, but the symptom of edema as will be seen was materially lessened. The patient was Mrs. S. S., aged 52, a patient of Dr. Helen Kirschbaum who kindly permitted me to see her. This patient was desperately ill. She had exophthalmic goiter, with tachycardia, mitral regurgitation, cardiac dilation, arteriosclerosis and nephritis with edema of the legs, thighs and face. She had been ill for one and a half years. Patient was very excited and her condition was regarded as hopeless. Examination of the urine revealed the presence of albumin and casts. It was decided to inject 500 c.c. of the sodium carbonate and salt solution intravenously in order to note its effect on the edema. Following the injection the symptom was remarkably lessened. The urinary flow increased and the albuminuria lessened. She died, however, from cardiac exhaustion. The effect on the blood-pressure was not appreciable.

Case 5.—J. R., boy, aged 8 years, admitted to my service at the Mount Sinai Hospital, May, 1913. Diagnosis, acute attack in a child with subacute nephritis. Illness is supposed to have started two years previously. Child ailing more or less during this time. Three weeks previous to admission mother noted puffiness of the eyelids and that the feet and legs were edematous. Appetite poor. Intense headache. Urinary flow said to be diminished. Urinalysis showed albumin and casts, red and white cells and intensely acid smoky urine with a specific gravity of 1.026. Treatment: The alkaline and salt solution were administered by the drop method by rectum. In addition this solution sterilized was given hypodermically under the skin of the abdomen. At the point of injection two severe sloughs later appeared. These took weeks to heal by slow granulation. Sloughing resulted in all probability from the action of the alkali, and I believe it unsafe to employ the solution in this manner. It should either be given intravenously or by rectum. Figure 2 shows the sloughing areas. Result: The edema, the albumin, casts and blood elements disappeared and the urinary flow was increased. The child left the hospital within two months perfectly well and was sent to the seashore to recuperate. There has been no recurrence. Final recovery was delayed on account of the sloughing sores.

Case 7.—G. L., aged 22 months, admitted to my service at the Mount Sinai Hospital, August, 1913, diagnosis nephritis. Infant markedly edematous about the body and face for the past two months. Vomiting and diarrhea. Urinalysis shows all the evidence of nephritis. Treatment: Sodium carbonate and sodium chlorid solution by drop method by rectum and normal saline solution by hypodermoclysis. Result: Discharged from the hospital, September, 1913, completely recovered.

Case 8.—H. C., aged 17 months, seen in consultation with Dr. Robin of Wilmington, Del., and later admitted to my service at the Mount Sinai Hospital. Diagnosis, severe nephritis. Breast-fed up to present time. About eleven weeks ago developed a rash which was diagnosed measles (probably was scarlet fever); several days later mother noticed that child passed no urine. The entire body, face, hands, arms, legs, feet, thighs, scrotum, abdomen and chest wall intensely edematous (Fig. 3). Examination showed some fluid in the abdominal cavity and thorax. The lungs showed some edema as well. Urine obtained by catheter became practically solid when boiled. Contained casts and blood elements and was intensely acid. Child received 200 c.c. of normal salt solution under the skin and enteroclysis by the sodium carbonate and sodium chlorid solution. Treatment was continued daily, the amount injected being from 150 to 250 c.c. The edema began to decrease rapidly, but the urinary flow was not increased and the amount of albumin remained the same (Fig. 4). The abdomen and scrotum became more distended and the child became weaker and died three weeks after admission. This child was actually water-logged. The kidneys were damaged beyond repair as judged by the tremendous amount of albumin. While the edema, especially that involving the face, legs and scrotum almost entirely disappeared, the urinary flow was not increased. Fischer's explanation as to why certain nephritics increase in weight after receiving salt in the food in all likelihood applied here. The giving of salt causes the edematous tissues to give up their water. This cannot escape via the kidney if it be too severely dam-

Fig. 4.—Edema of body much less (Case 8) after several injections of salt solution.

aged. Hence the fluid collects in the cavities, and being a solution of colloidal substance, it cannot be absorbed. Hence the increase in weight. This occurred in this case. This also explains why tapping must be done in this type of patient.

CASE 9.—E. S., girl, Pole, aged 8 years, seen in consultation with Dr. J. J. Frankel. Following a frank attack of scarlet fever the child developed an intense nephritis and when first seen was unconscious, in convulsions and edematous. The urinalysis presented all the features of acute Bright's disease. The sodium chlorid and sodium carbonate solution were given by the drop method by rectum continuously for about ten days together with salt solution by hypodermoclysis. The child remained unconscious for three days and was fed through the nose. She finally made an uneventful recovery, all the symptoms of nephritis disappearing and to-day she is perfectly well.

CONCLUSIONS

My experience with this method of treatment permits me to subscribe to the following:

1. Sodium chlorid neither produces nor increases water retention in either the nephritic or non-nephritic.
2. It is curative in cases of edema from any cause provided the kidneys are not too severely damaged.
3. It does not cause edema in marantic infants.
4. When combined with an alkali and plenty of water it exerts a benificent influence on all the symptoms of nephritis.
5. It is dangerous to administer a solution of an alkali under the skin as it is liable to produce sloughing.
6. The best means of administering the salt and alkali solution is either by rectum or intravenously.

1927 North Broad Street.

ABSTRACT OF DISCUSSION

DR. THOMAS S. SOUTHWORTH, New York: I cannot speak from the point of view of this disease in children, but since the use of sodium chlorid in children is contradictory to what has been impressed on us so strongly in late years concerning the elimination of salt from the diet of nephritic patients, I think it is wise to speak of the use of Fischer's solution in the case of a young adult with typhoid. She began with acute nephritis and delirium. There is no question of the fact that the nephritis rapidly cleared up coincidently with the instillation of Fischer's solution into the rectum, by the drop method. Whether it had any beneficial effect on the nephritis or not, it could not be said to have had any deleterious effect.

DR. JOHN ZAHORSKY, St. Louis: Will Dr. Lowenburg state what is the difference between giving from 10 to 15 gm. of potassium acetate or sodium chlorid by mouth every three hours, and then drinking a lot of distilled water or plain water, and using the solution hypodermically or by rectum? It is painful and often produces sloughing to introduce this material under the skin.

DR. PERCIVAL NICHOLSON, Ardmore, Pa.: When I was a resident in the Municipal Hospital we treated a large number of patients with salt solution by bowel, and we found it markedly increased elimination, and lowered the mortality in toxic cases of diphtheria. We devised a method to run the salt solution in slowly and continuously, only intermitting two hours during the day. At the end of the first day the children hardly noticed it, and retained the solution well even though a number were under 2 years. Solution introduced by the bowel seems to act better than when introduced by mouth, for the reason that the stomach is not upset with large quantities of solution. With the proper apparatus it is easy to administer by rectum, without disturbing the patient.

DR. HARRY LOWENBURG, Philadelphia: Dr. Zahorsky is right. Alkalies by mouth are just as good as salt administered by rectum. The paper emphasized the fact that salt did not increase the severity of nephritis, nor increase edema. I think salt administered directly would probably bring about as good results. Absorption may not be as quick.

THE RÔLE OF FUNCTIONAL KIDNEY TESTS AND PREOPERATIVE AND POSTOPERATIVE TREATMENT IN THE REDUCTION OF PROSTATECTOMY MORTALITY *

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Conspicuous among the many notable urologic achievements characterizing the close of the nineteenth and the dawn of the twentieth centuries stands the establishment of prostatectomy—or more properly speaking prostatic adenomectomy—as a feasible, desirable and comparatively safe operative procedure. The surgical treatment of adenomatosis of the prostate, alias prostatic hypertrophy, has changed most remarkably since the days of Mercier's incisor and Leroy d'Etiolle's valvular section of the neck, to the modern conservative perineal operation of Proust-Young or the suprapubic transvesical prostatectomy of Fuller-Freyer.

Although it is generally conceded that the mortality due to danger of infection from catheter life in prostatism, in those cases in which that form of treatment is possible or justifiable, is to-day at least twice as great as from a skilfully performed prostatic adenomectomy, the fact exists that for more than a decade following the first so-called total prostatectomy in 1891 by Goodfellow, the death-rate incident to this operation was so high that the utility of the catheter continued to be an almost universal practice. During the past thirteen years mortality following prostatectomy has steadily decreased from 50 per cent. to from 5.5 to 3.77 per cent. in the experience of its worthiest and most expert exponents. In the light of these facts it is a source of much regret to genito-urinary surgeons that many practitioners on the one hand continue to advise and recommend, routinely, medical treatment and the time-worn catheter with its 100 per cent. mortality in a four-year prognosis, while on the other, many general surgeons doubt the veracity of statistics and point to a minimum mortality of from 10 to 20 per cent. for the operation of prostatectomy.

Satisfactory as the results have become with improvements in technic, there is to-day a definite and extensive effort on the part of urologists to shave the present low mortality by more careful discrimination in the selection of operative cases, by exact study of the general organic fitness of the candidate, especially his functional kidney sufficiency. Obviously the age of the patient cannot be entirely ignored, and weighed in conjunction with other features of the case, may preclude the advisability of operation, although *per se* advanced age is no contra-indication. Other factors of equal importance governing the operability of the case are best appreciated by recalling the stages of the living pathology of prostatism, namely (1) dysuric phenomena, (2) retention of urine with or without infection, (3) distention and dilatation of the bladder incident to urinary obstruction and (4) internal compression of the kidney with secondary cardiovascular changes and toxemia leading to uremia.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

Thus in addition to the offending prostate itself, with its secondary and remote organic and systemic effects, in the capacity of renal, cardiac, pulmonary, hepatic and even nervous and mental defects, infection is commonly present and must receive consideration in the prognosis and preliminary preparation of the patient. The increased mortality of prostatectomy in cases complicated by infection or calculi is well recognized.

As a result of the cardiorenal involvement, which is invariably present to a greater or lesser degree in cases of prostatic obstruction, I have come to attach much importance to the determination of blood-pressure and have made it a routine part of the preparatory study of all cases, placing its importance second only to the estimation of the renal function.

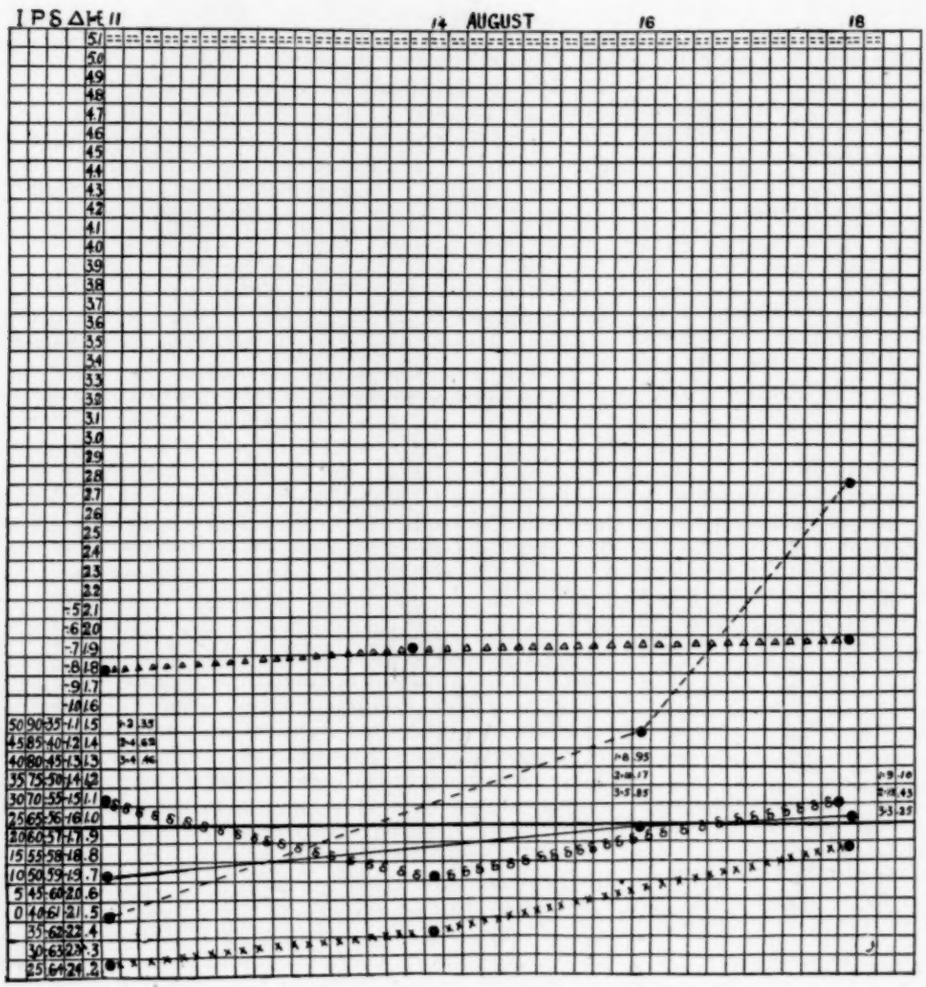

Fig. 1.—Illustration of progressive improvement in organic condition of patient (Samuel L.). Observe especially index of elimination of indigocarmin. Prostatic adenomectomy followed by uneventful recovery. = = = = = average normal index for indigo; — — — — = index of elimination of case (indigo); ——— = indigo percentage elimination; xxxx = phthalein percentage elimination; δδδδ = cryoscopy of blood; ΔΔΔΔ = cryoscopy of urine.

In importance at least equal to the blood-pressure governing the operability of the case stands the myocardium associated or not with a cardiovascular sclerosis. Minor valvular lesions of the heart in themselves need not be considered as vital contra-indications. Operation has been denied to two patients because of cardiac lesions associated with high blood-pressure and general sclerosis, in spite of the fact that in both cases the renal function was ideal as determined by indigocarmin, phenolsulphonephthalein and cryoscopy.

It must be quite apparent, therefore, that the factors concerned in the operation of modern prostatectomy and responsible for making its mortality one of the mildest in urologic surgery are manifold. They may be grouped advantageously under three captions: first, the preoperative investigation and preparation of patients; second, improvement in technic, and third, the best postoperative treatment. It is my humble conviction that the first and third steps in the management of the case are vastly more important than the operation itself and certainly outweigh any decision as to the choice of the perineal or suprapubic route.

Before entering on any discussion of the operative technic, I wish to revert for a few moments to the preliminary investigation of the case. Rectal palpation is of as much importance in urology as is a vaginal examination in gynecology; therefore, this exploration becomes the first act with the patient presenting a prostatic history. The second act consists in the determination of the amount of residual urine. This is important prognostically, in view of the *vis a tergo* pressure on the kidneys incident to the urinary retention and especially in determining the degree of actual vesical distention, for when the amount of residual urine attains, and *a fortiori* when it exceeds 300 c.c. the musculature has become atonic and the bladder has been strained and permanently dilated. This is evidenced by the deplorable result of prostatectomy, however skilfully performed, when vesical contractility is abolished.

The evil effect of completely evacuating the bladder in cases of marked retention of urine are well recognized by urologists. Not only may congestion and hemorrhage from the bladder and kidneys occur following such a procedure, but shock and even sudden death may supervene, owing to the reflex nervous derangement of long tolerated intrarenal pressure and secondary cardiac involvement. An understanding of this pathologic mechanism readily explains certain phenomena of urinary secretion, particularly the results in functional kidney tests when the elimination preceding sudden evacuation of the bladder in cases of retention markedly exceeds at times that after vesical relief. To perform prostatectomy or any other major surgical opera-

tion at that time, when the patient is in the negative phase, as it were, is equivalent to signing his death certificate and has deterred the wise surgeon from removing the prostate at the time cystotomy became necessary for urinary drainage. This realization, the provocation of preliminary treatment by catheterization, is by all odds the most important factor in the reduction of prostatectomy mortality. The value of this step has prompted a few genito-urinary surgeons to recommend the two-stage operation in all cases. I feel that such a practice routinely is utterly unnecessary, although the exceptional case will demand the procedure. As a rule intermittent catheterization or the catheter *à demeure*, closed, but opened from time to time, or allowed to drain continuously, will suffice for drainage for vesical and renal *restitutio ad integrum*.

During the period of preoperative treatment, particularly if urinary infection is present, total irrigations with silver nitrate are imperative, attention to the gastro-intestinal tract is obligatory, copious drafts of water associated with urinary antiseptics in an attempt to increase the urinary output are of great value, and finally, many patients will be braced up and tided over the critical operative stage by the internal administration of such drugs as strychnin, digitalis, nitroglycerin, caffein, sodio-benzoate, spartein and acet-theocin sodium (theophyllin sodio-acetate).

Undoubtedly, the study of the renal function is of preeminent importance, since impairment of the kidneys, resulting in azotemia and uremia, kill more patients after operation than any other organic defect and is the *raison d'être* of many known and unknown subsequent pathologic conditions.

It is my practice to subject all candidates for prostatectomy to a rigid and extensive investigation of their kidney function. Frequently these examinations have to be repeated owing to the poor operative risk at the time of admission, so that the average patient is obliged to remain in the hospital for his preoperative treatment for a term of two or three days to as many weeks or months in exceptional cases.

The functional kidney tests routinely employed are indigocarmin, phenolsulphonephthalein, cryoscopy of the blood and urine and the determination of urea. Of these an extended experience has taught that indigocarmin is the most practical and best and in no way superseded in value by any of the others. It matters little whether deductions are drawn from the onset of elimination or made from quantitative colorimetric determinations. The dye may be administered either intramuscularly or intravenously; if by the latter method, which may be the preferable procedure, there is no resultant soreness at the site of injection—an objection which was raised against the intramuscular method.

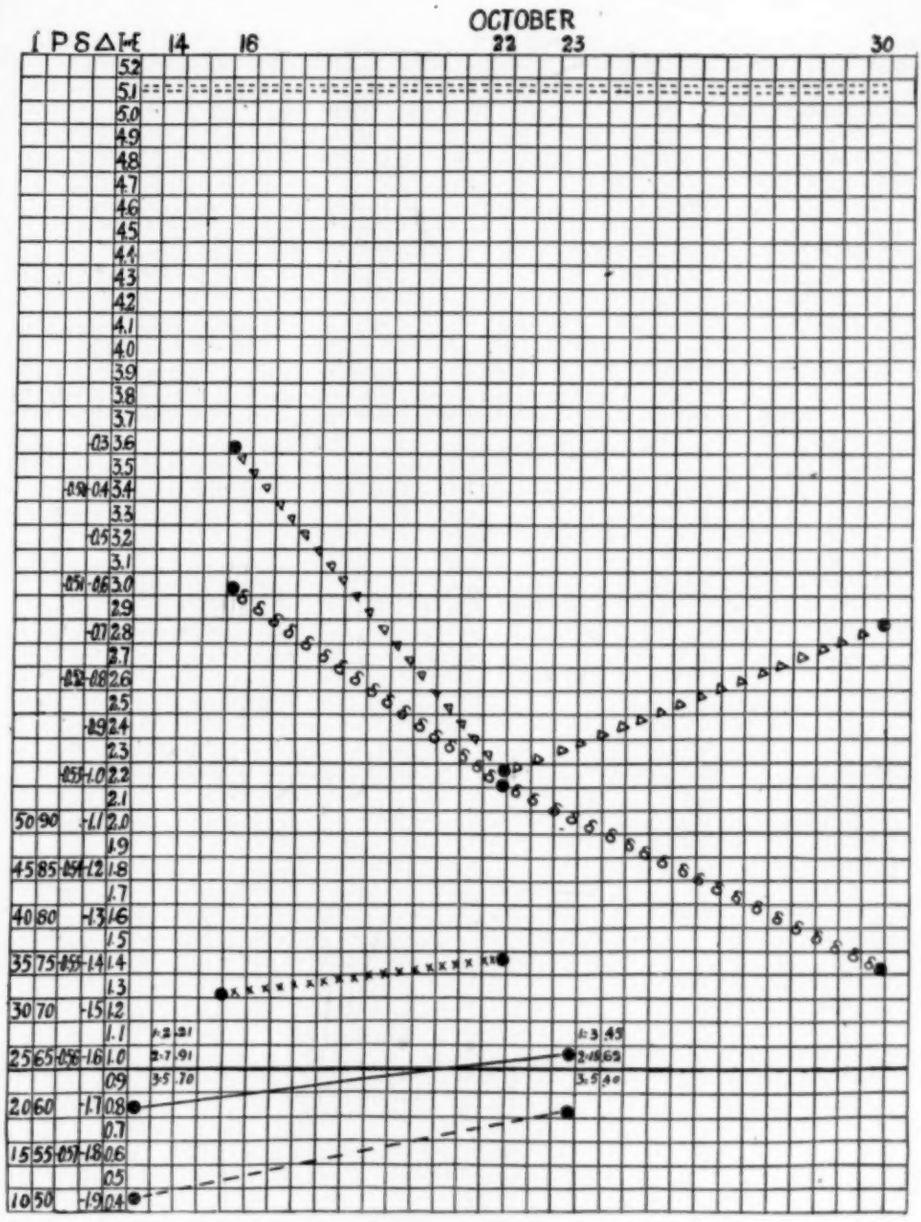

Fig. 2.—Case of inoperable prostatic adenomatosis (Michael T.). Inoperability due largely to marked cardiovascular lesions in addition to renal insufficiency. = = = = = = average normal index for indigo; — — — — — = index of elimination of case (indigo); ——— = indigo percentage elimination; xxxx = phthalein percentage elimination; δδδδ = cryoscopy of blood; △△△△ = cryoscopy of urine.

Valuable as I believe indigocarmin to be as a functional kidney test, judged from its onset of elimina-

tion and quantitative determination, I have been recently deeply interested in working out what I have styled its *index of elimination.* In the careful study of a series of cases, normal and pathologic, it is apparent to me both from the clinical point of view and operative results, that the *index of elimination* furnishes a truer guide as to the renal function than any other method that it has been my pleasure to utilize. The *index* is determined by dividing the quantity of indigocarmin eliminated during the first hour by the quantity excreted during the third hour after injection. Realizing that when the kidney parenchyma is diseased the onset of elimination is delayed and the amount of early elimination proportionately diminished, while the duration of excretion is prolonged, it has seemed to me for a number of years that the relative outputs for the first and third hours was of prime importance and probably of greater value than the mere quantitative output for the first two hours.

In order to substantiate my claims and belief, I have introduced into this article a number of self-explanatory charts of prostatic cases, inoperable, operable and operated, illustrating the position and value of the *index of elimination* relative to the quantitative determination of indigocarmin as well as various other functional kidney tests (Figs. 1, 2, 3, 4, 5, 6, 7 and 8). I have determined that the *index of elimination* for normal individuals in a series of cases averaged 5.1, and have designated same by double broken lines. A study of the charts graphically impresses the fact that when the amount eliminated during the third hour equals or exceeds that excreted during the first hour, the patient's kidney function possibly contra-indicates serious operative intervention, namely, prostatectomy, unless the total amount eliminated in three hours exceeds 20 per cent., when operation may be considered even though the *index of elimination* be very low (Fig. 6).

The importance of thoroughly emptying the bladder by catheter at the end of each hour cannot be too strongly emphasized, otherwise erroneous results will occur.

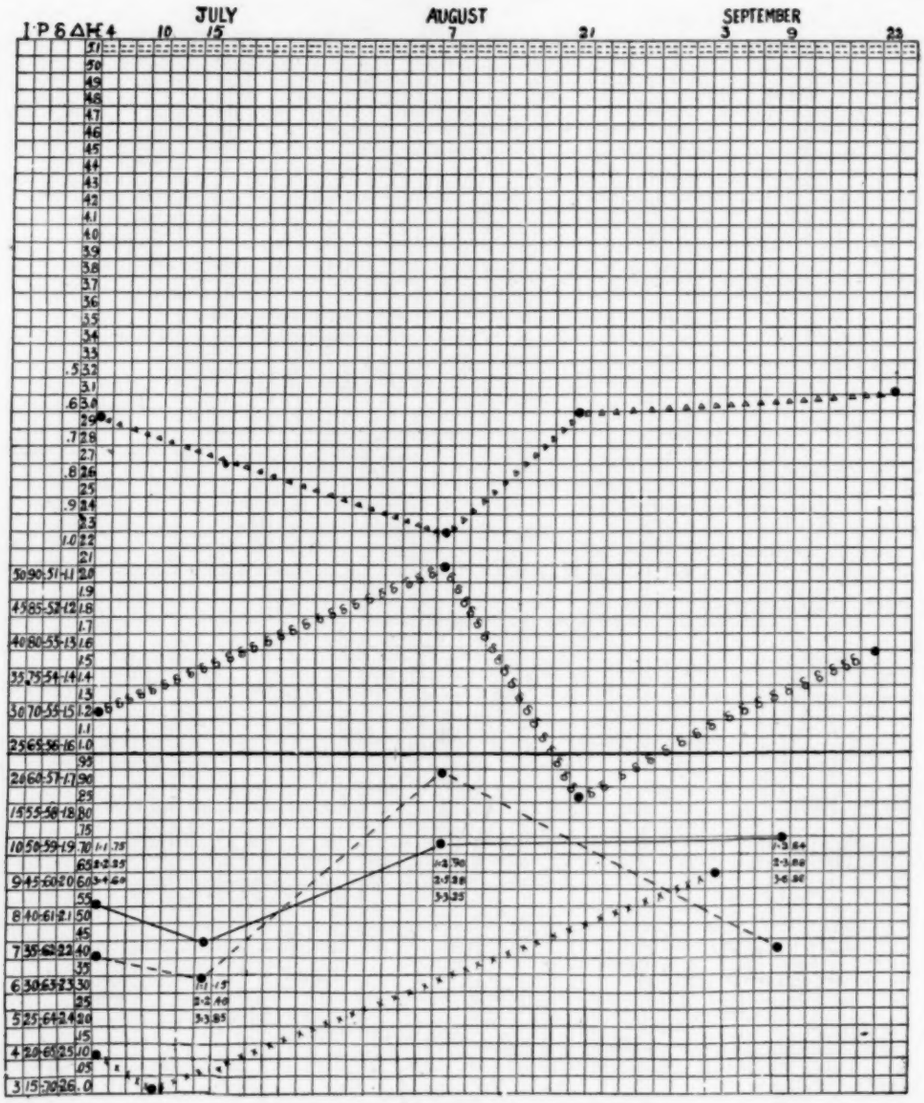

Fig. 3.—Case of inoperable carcinoma of prostate (Augustus C. V.). Observations extend over three months until death. = = = = = = average normal index for indigo; — — — — = index of elimination of case (indigo); ——— = indigo percentage elimination; xxxx = phthalein percentage elimination; δδ δδ = cryoscopy of blood; ΔΔΔΔ = cryoscopy of urine.

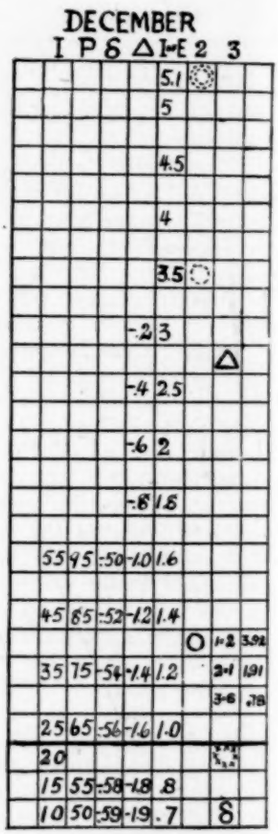

Fig. 4.—Index of elimination of indigocarmin high. Prostatic adenomectomy with recovery (Isaac F.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

Relative to operative technic or the choice of operation itself, time, space and inclination forbid that I shall say much. It is my belief that the prostatectomist who patronizes exclusively the perineal route is just as much in error as the surgeon who dogmatically attacks the prostate only suprapubically. Worst of all is the operator who chooses this or that route simply because he can do it better, regardless of a lower mortality by another method, of which he may be less familiar; such surgery may be the best for the operator but not necessarily for the rank and file of patients. The fundamental consideration in the choice of routes for prostatectomy should be the selection of that associated with the minimum mortality. Presumably this, as demonstrated by its ablest exponent, Hugh Young, is perineal prostatectomy, and it behooves each prostatectomist to familiarize himself with every minute detail of technic of the conservative perineal operation before casting his lot unalterably with the suprapubic route. The operative approach in each case should be governed more by the pathologic condition present than by the normal anatomic relationship of the prostate. To attempt the removal perineally of a prostate with preponderant enlargement of the median lobe, particularly if it be complicated by a large vesical calculus or possibly a neoplasm, is just as erroneous a procedure as the attempted enucleation suprapubically of a small fibrous, adherent gland,

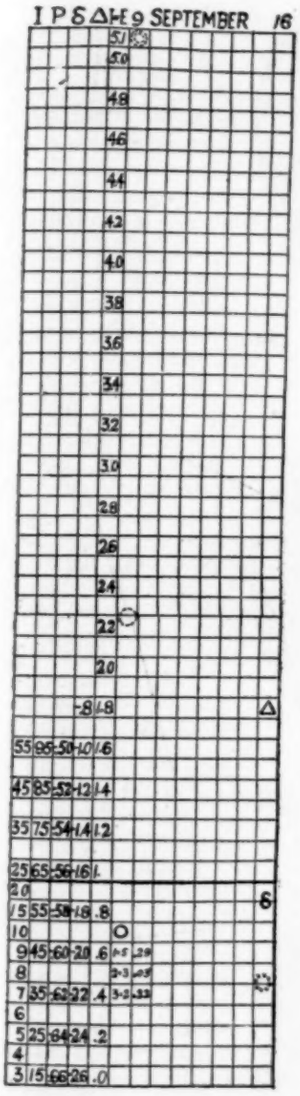

Fig. 5.—Index of elimination high, indicating operability of case. Prostatectomy followed by uneventful convalescence (Freeman S.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

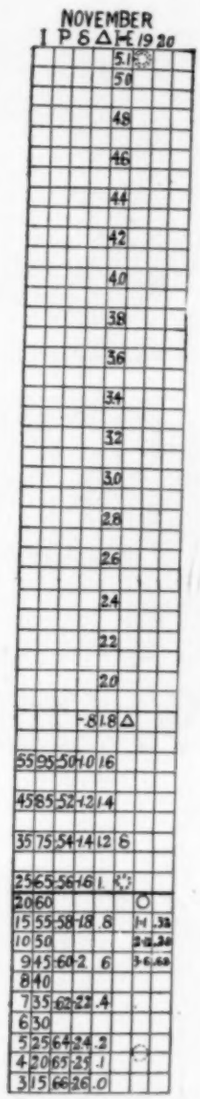

Fig. 6.—Index of elimination very low, but case pronounced operable since total output of indigocarmin for three hours exceeded 20 per cent. Prostatectomy and recovery (Albert M.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

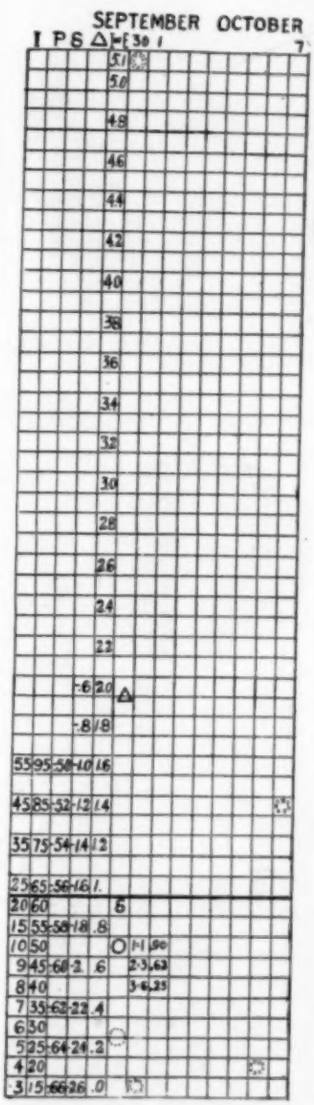

Fig. 7.—Index of elimination demonstrates insufficiency of kidneys and contra-indicates prostatectomy (Mr. A.). Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryoscopy of blood; Δ = cryoscopy of urine.

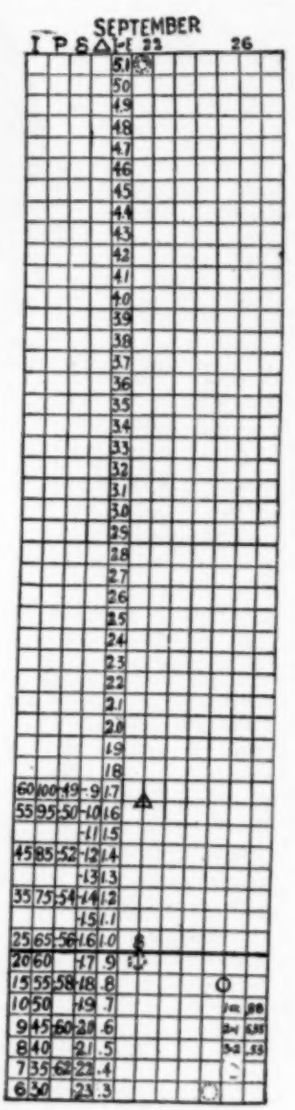

Fig. 8.—Illustrative of case of organic insufficiency in which index of elimination of indigocarmin contra-indicated prostatectomy (David S.). Death seventeen days after operation. Circle of double broken lines = average normal index for indigo; circle of single broken lines = index of elimination in case (indigo); solid circle = indigo percentage elimination; circle of x's = phthalein percentage elimination; δ = cryscopy of blood; Δ = cryoscopy of urine.

ofttimes readily excised perineally. To me it has seemed and is the routine practice to decide each case for itself, whether the prostate is to be attacked perineally, suprapubically or perurethrally. A most important aid in determining this choice has been the cystoscope. By it the nature of the lobular hypertrophy, vesical complications as calculus, tumor, etc., and most important of all, the functional integrity of the kidneys are determined (Figs. 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20). As a result of this discrimination in a series of over thirty cases only 16.6 per cent. of the patients were operated on suprapubically. Four patients, as a result of careful organic investigation, particularly the renal function, were refused operation. Moreover, the series embraces three cases of carcinoma — one pronounced inoperable (Fig. 3), and the other two discovered during the histopathologic examination of the removed gland—and one case of sarcoma. A review of all operated cases, both perineally and suprapubically, excepting one patient who died of ether pneumonia on the ninth day after prostatectomy, shows a mortality of 3.3 per cent. I feel morally certain that the death-rate in this series would have reached at least 10 per cent. had not the four patients noted above been refused operation owing to their organic and renal insufficiency.

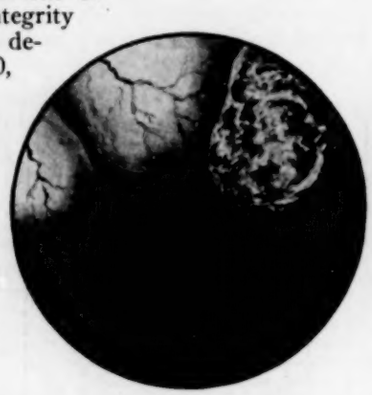

Fig. 9.—Ulcerative myxosarcoma of prostate.

Fig. 10.—Hypertrophy of median lobe of prostate with beginning carcinomatous degeneration.

Fig. 11.—Prostatic enlargement complicated by vesical calculi.

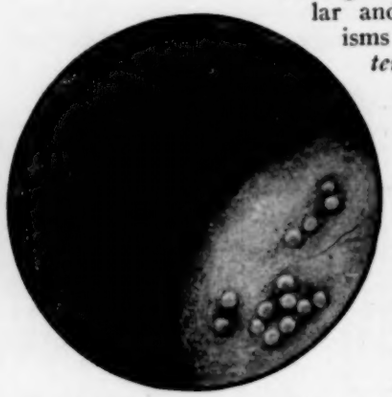

Fig. 12.—Hypertrophy of median lobe with cystitis cystica of overlying mucosa.

Fig. 13.—Trabecular hypertrophy of bladder and multiple papillomas complicating prostatic hypertrophy.

Fig. 14.—Papilloma of bladder complicating enlargement of the prostate.

It can be readily inferred from the statements above that, all things being equal, prostatectomy by the perineal route is the operation of preference. The technic employed follows as nearly as may be that advocated by Young, the essential difference being the incision as shown in Figure 21. In the employment of the suprapubic method, the technic of Freyer, with minor modifications, is utilized.

Although nitrous oxid is the preferable anesthetic in desperate cases, the gas-oxygen-ether sequence may be routinely and safely employed, particularly if due preliminary urinary drainage has been secured and properly maintained until the susceptibility of derangement of cardiovascular and nervous mechanisms incident to the *vis a tergo* intrarenal pressure has passed.

The postoperative treatment of these old men is little less important than the preliminary preparation. The cardinal factors responsible for speedy convalescence and a minimum mortality-rate are, first, hydrotherapy (routine hypodermoclysis and continuous vesical irrigation), and second, position (sitting posture in and the next day out of bed at the earliest opportunity).

CONCLUSIONS

1. The most appropriate method of prostatectomy in a given case depends on the pathologic condition present, rather than on the normal anatomic relationship of the prostate. This pathologic condition is of greater consideration than the statistical low mortality-rate of either the perineal or suprapubic method, and more discrimination in this respect offers a means of shaving even the present low percentage. The cystoscope is a most important aid in the determination of the avenue of approach in the particular case.

2. Although the renal function is the paramount consideration in determining the operability of a case, consideration of other organic conditions must never be slighted.

3. Indigocarmin is superseded by no other kidney test in the estimation of the renal function.

4. Apparently of more dependence than merely the onset and quantity of excretion of indigocarmin is the *index of elimination*, described by me.

5. A prostatectomy mortality of 3.3 per cent. is attributed largely to cystoscopic aid in determining the method of operation, and also to the *index of elimination* of indigocarmin in discrimination as to the operability of cases.

116 South Nineteenth Street.

ABSTRACT OF DISCUSSION

DR. HUGH H. YOUNG, Baltimore: I have never tried this method that Dr. Thomas has brought forward. It is certainly ingenious. Will Dr. Thomas say whether there is a similar index in phthalein? Do they stand in about the same proportion? I think we are all rapidly coming to the view that there is no one method; we do not think that phthalein is the only thing to use. Certainly a study of the blood, in a good many ways, is important, and we also must back up our laboratory findings with the clinical. A certain percentage of output in the first or second hour is not dependable. In a great many cases a man will never reach the stage at which his functional output would be considered good. In those cases the important thing is whether the output is stable so that the patients will be in a condition to stand operation. There are patients who go through an operation although their output is poor. Perhaps Dr. Thomas' suggestion as to the index may be of value, and I would like to see it worked out for all the other functional tests. I want to congratulate him on his low mortality. There is no doubt that the functional tests and preliminary treatment are important factors in lowering mortality. I feel that it is unnecessary in the large majority of cases to use a suprapubic drain. I employ that very seldom. I almost always use either a retained catheter or intermittent catheterization.

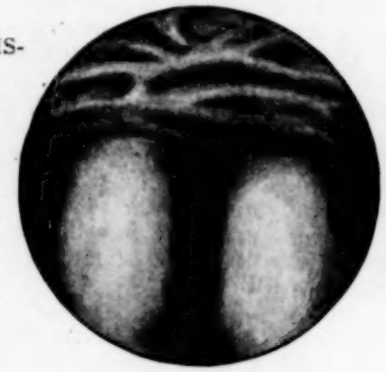

Fig. 15.—Preponderant hypertrophy of lateral lobes of prostate.

Fig. 16.—Vesical calculi and ulcerative cystitis complicating prostatic enlargement.

Fig. 17.—Carcinoma of bladder complicating prostatic hypertrophy.

Fig. 18.—Vesical calculi and preponderant hypertrophy of median lobe of prostate.

Fig. 19. — Vesical calculi complicating prostatic hypertrophy.

Fig. 20.—Papilloma of vesical neck complicating prostatic enlargement.

DR. EDWARD MARTIN, Philadelphia: I have seen Dr. Thomas' accurate work and I know its thoroughness. He is a lover of indigocarmin, is jealous of the claims of all other tests, and, as a result, applies his favorite test with more discriminating judgment than does any other man in this country. Certainly, in his hands, it is efficient and reliable. For the untrained the sulphonephthalein would seem more available.

DR. MARTIN KROTOSZYNER, San Francisco: I am much interested in Dr. Thomas' statement as regards the choice between the suprapubic and the perineal route on the basis of cystoscopic findings, and I hope that Dr. Thomas will dilate on this point in closing the discussion.

DR. HUGH CABOT, Boston: The longer I use tests of various kinds the more clear it becomes to me that dependence on one test is unsound. I have not come to the same conclusion as Dr. Thomas with regard to indigocarmin. I regard it as markedly inferior to phthalein. The essential thing is stability of kidney function, rather than a high or low function, which influences our opinion. We have all seen patients with extremely low function, tested in various ways, but without evidence of nitrogen retention, who stood operation well because the function was still stable. We have also seen patients with high function which, under various strains of exercise, changes of diet and alterations in the quantity of water, would vary markedly. Those patients we regard as extremely poor risks, and unless their kidney function can be made stable they are going to cause us to let the other fellow operate. I believe that some method of studying the nitrogen retention of the blood is essential to the most narrow decision in these cases. There are cases in which in no other way can one determine impending uremia. We have been depending largely on the Folin method of determining the nitrogen content of the blood. The French are using a pretty complicated method, but they all aim in the same direction—the evidence of the ability of the kidney to get rid of nitrogenous products. None, I think, of the color tests or the test with phloridzin attains that extremely important point. I am inclined to classify phloridzin, indigocarmin and phthalein in the same general category, regarding phthalein as the most efficient and the most easily managed, but all of them necessarily controlled by a study of nitrogen retention in the more difficult cases.

DR. F. W. BRAASCH, Rochester, Minn.: I am not very familiar with the use of indigocarmin and therefore do not

know its comparative value. I do not believe, however, that any functional test can give us data which will determine whether or not to operate. It has been my experience that subjective symptoms and clinical data following preliminary treatment are determining factors.

Dr. B. A. Thomas, Philadelphia: That it is not the large output that counts is exactly my contention. That is the very reason, as I said, that the total output for the first and second hours is not comparable in utility, from my experience in over three hundred cases, to the index of elimination or the ratio of the total output of the third and first hours. Concerning the index of elimination for phenolsulphonephthalein about which Dr. Young asked, there is no doubt

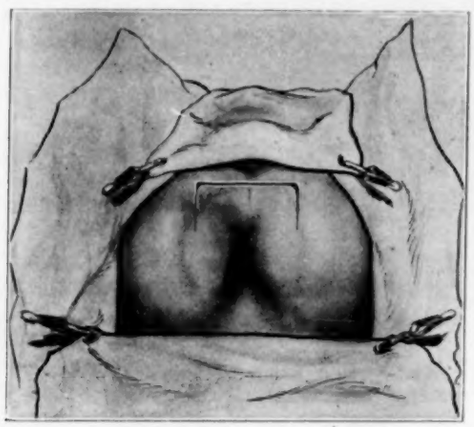

Fig. 21.—Author's incision.

but that the same method can be applied to any substance. It has, however, been my experience that the index thus determined has not been so reliable as when applied to indigocarmin. I have long thought that there may be the same objection to phthalein as to phloridzin, that is, the test may be too delicate; certainly the results in my experience are not so uniform and apparently not so reliable. Respecting the comparable value of indigo and phthalein, I would like to direct your attention to the chart of the patient with inoperable carcinoma of the prostate. You will see that phathalein indicated progressive improvement in the state of the patient's health. Indigocarmin total output showed that he was barely holding his own, while the index of elimination of indigo showed that the patient all the time was gradually sinking farther down into the negative phase. I could show you a number of other instances in which indigocarmin has apparently served as a much more reliable guide than phthalein. Brevity of time precluded the possibility of entering on the advantages of the cystoscope in determining the best operative procedure to be adopted in cases of prostatic hypertrophy. There are few patients who cannot be satisfactorily cystoscoped, and the revelations it gives are instructive and important. If you have a patient with a preponderance of the middle lobe, and particularly if associated with a large calculus or a vesical tumor, it is folly to attempt to remove that prostate perineally. On the other hand, if it is small and hard, with no relative preponderance of middle-lobe enlargement, it is perhaps wise, in view of the lesser mortality, to attack it perineally.

Speaking of mortality, in explanation of the low mortality of 3.3 per cent. which I have had, I attribute this perhaps to good fortune, but also to certain other factors and precautions. For instance, in the last year I have refused to operate on four patients on account of the revelations by indigocarmin, and I am convinced that had I operated in those cases my mortality would have been 10 or 15 per cent. at least.

Finally, I believe that this index of elimination may give a better idea of the stability of the renal function than mere quantitative determination for the first two hours of indigocarmin or phenolsulphonephthalein, but in my experience it has been applied with the best results to indigocarmin.

THE RELIEF OF STERILITY BY MEANS OF PERMANENT EPIDIDYMOSTOMY

WITH THE FORMATION OF AN ARTIFICIAL SAC FOR THE STORAGE OF THE SPERM *

V. D. LESPINASSE, M.D.
CHICAGO

The types of sterility suitable for permanent epididymostomy are all cases of obstruction of the vas above the internal abdominal ring, and almost all cases of obstruction of the ejaculatory ducts. This work represents seventy-nine operations.

The relief of male sterility attracted little attention until 1901, 1902 and 1903, when Martin,[1] Scaduto[2] and Bogoljuboff[3] published their works on anastomosis of the vas to the epididymis, and the rete testis to the vas. These operations give excellent results in proper cases, but the statistical frequency of cases of sterility suitable for them is about one in three, or 33 per cent. They depend absolutely on the patency of the vas deferens. If the vas, or ejaculatory duct, is stenosed they fail.

To try to relieve the cases with a stenosed vas deferens, I conceived the following technic: A sac was made communicating with the epididymal tube lumen into which the sperm could be discharged and hence accumulate, so that the individual would always have from 2 to 10 c.c. of sperm available at all times. Two points came up: First, Where, or rather what portion of the epididymal tube is best suited to discharge into this sac? The head of the epididymis was selected as the most available portion as it is practically always open. It has the disadvantage, however, of having the smallest lumen of any portion of the epididymis. Second, How and of what shall the sac be composed? An ideal sac must possess the following characteristics: Material for its construction must always be available. It must be non-absorptive. It must not secrete any substance that is harmful to the sperm. As material for the sac, I have tried peritoneum, bladder mucosa, skin and rubber sheeting, and have under way experiments using vein silver foil and celloidin.

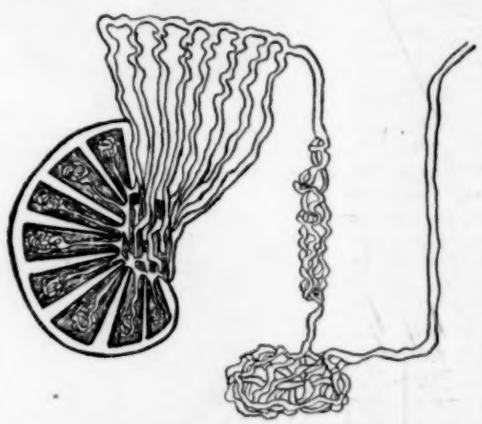

Fig. 1.—Schematic drawing showing the testicle, rete testis, globus major, body of the epididymis, globus minor and the vas deferens.

* Read before the Section on Genito-Urinary Diseases at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Martin: Univ. of Penn. Med. Bull., 1902, p. 388; ibid., 1903, xv, 2; Therap. Gaz., Dec. 15, 1909, p. 837.
2. Scaduto: Ann. d. mal. d. org. génito-urin., 1901, xix, 257.
3. Bogoljuboff: Arch. f. klin. Chir., 1903, lxx, 648.

When this work was first conceived, I considered that the technic would be very simple and could be carried out with great ease. The first difficulty encountered was the adherence of the parietal layer of the tunica vaginalis to the cut surface of the epididymis. I then considered all the methods of preventing peritoneal adhesions, but before these were carried out Post's[4] article on peritoneal adhesions came out, and he showed conclusively that all the so-called standard methods were practical failures. He advanced a new method, namely, the use of sodium citrate 2 per cent. in 3 per cent. salt solution.

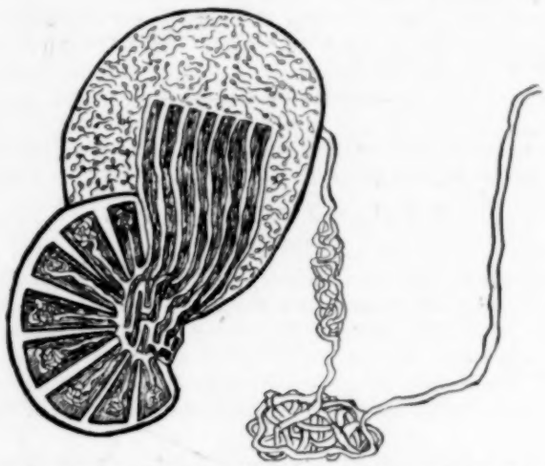

Fig. 2.—Schematic drawing, same as Figure 1, except that it shows the tubule of the globus major cut off and the sac made around them filled with spermatozoa.

This was tried and failed. In the peritoneal cavity there is considerable movement between the visceral and parietal peritoneal surfaces. In this work on the epididymis there is practically no movement, which fact may explain our failures.

I thought that these adhesions might be prevented by treating the tissues as we do the intima of blood-vessels, but these methods failed. The reason for this failure, in my opinion, is the slight hemorrhage that comes from the cut epididymal tubules and the absence of motion between the epididymis and the parietal layer of the sac. To check this hemorrhage, or at least minimize it as much as possible, I used epinephrin. Then it was thought that we might operate without producing any hemorrhage from the epididymis at all by the use of the following technic: A human hair threaded on a fine blood-vessel needle was passed into the lumen of the epididymal tubules; it was run along the lumen about a millimeter or so, then the wall of the tube was pierced by the needle and the hair brought outside the tubule; the two ends of the hair were then tied, so producing a slightly elastic band which would gradually cut through the tissues. On the side of the sac, to obviate adhesions to the cut surface of the epididymis, I desided to try some non-absorptive epithelial surface such as skin, bladder mucosa, or a piece of vein or artery. Only two of these tissues are available from a practical point of view, namely, skin and a section of vein. Skin was used with considerable success. Then, after becoming acquainted with the work of Delbet[5] on the use of rubber, it was thought that the sac might be made of rubber.

This was carried out in three ways:

First, making the sac of tunica vaginalis and then simply covering the cut surface of the epididymis and the continguous surfaces of the testicle and epididymis with a piece of thin rubber sheeting.

Second, by making the sac entirely of this sheet rubber and sewing it to the reflected capsule of the epididymis.

Third, by removing the tunica vaginalis completely and placing the entire testicle and epididymis in a rubber bag and sewing this bag to the spermatic cord.

TECHNIC

The tunica vaginalis is exposed as for an ordinary operation for hydrocele. The parietal layer of the tunica vaginalis is then cut, thus exposing the testicle and the epididymis. Epinephrin is now injected beneath the capsule of the epididymis, commencing at the top of the globus major and continuing down to the junction of the globus major with the body of the epididymis. An incision is made in the center of the epididymis commencing at the top of the globus major and continuing down to the junction of the globus major with the body of the epididymis. The epididymal capsule is now dissected off, thus exposing the epididymal tubules. The tops of these tubules are now cut off or hair threaded through them. The sac is made as follows: The rubber sheeting or tunica vaginalis is sewed to the reflected capsule of the epididymis in such a manner as to form a closed sac. The testicle is now replaced in the scrotum and suitable dressings applied.

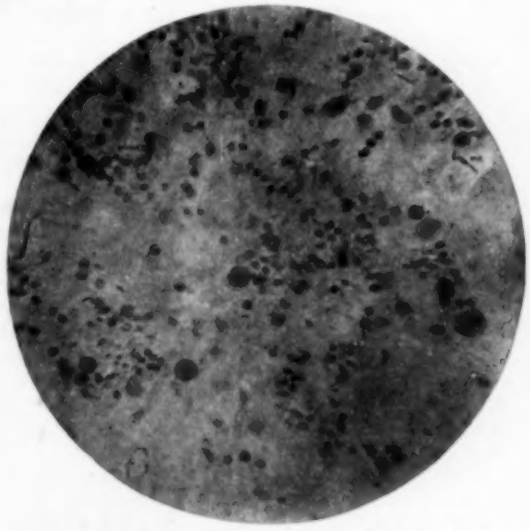

Fig. 3.—A photomicrograph of the fluid aspirated from the sac. This shows numerous spermatozoa.

CONCLUSIONS

With the above-described technic we can produce a sac into which the sperm will discharge and continue to live. This sac can be tapped whenever sperm are desired for impregnating purposes. This operation will relieve all cases of male sterility in which there is a functionating testicle.

I am under obligation for assistance to Drs. B. Newton Novy, Eugene J. O'Neil, John A. Ritze and S. Eisenstaedt,

4. Post: Citrate Solution as a Preventive of Peritoneal Adhesions, Ann. Surg., January, 1914.
5. Delbet, P.: Bull. de l'Acad. de méd., March 10, 1914, p. 380; Paris Letter, THE JOURNAL A. M. A., April 4, 1914, p. 1106.

of the Laboratory for Experimental Surgery of Northwestern University Medical School.

7 West Madison Street.

ABSTRACT OF DISCUSSION

Dr. Henry L. Sanford, Cleveland, Ohio: Has Dr. Lespinasse had any practical results? Has he cured any of these patients?

Dr. W. M. Spitzer, Denver: Dr. Lespinasse's attempt is something that ought to have been undertaken long ago. If

Fig. 4.—The hair in the epididymal tubule lumen. The two oval bodies are the cross-section of the hair.

Dr. Lespinasse has had results the experiment is going to be well worth trying. He says that the spermatozoa are motile. Are they motile after being mixed with prostatic fluid, or just at the time when he drew them from the sac? Has he attempted impregnation with this fluid, and what was the result?

Dr. Herman L. Kretschmer, Chicago: Will Dr. Lespinasse say what becomes of the rubber sac? Does it stay or slough out, or is it necessary to remove it?

Dr. Edward Martin, Philadelphia: These types of sterility come to us all, and we have not yet solved the question. I think everyone who has worked along this line has endeavored during operation to extract living spermatozoa, and usually the technic is their direct artificial injection into the uterus. There has as yet never been one single success. Lespinasse's suggestion seems a good one. In laboratory work we find that silver is tolerated better than rubber. A silver tube or capsule will remain and cause less irritation than rubber. It might be that a silver tube would be more likely to accomplish permanent drainage. This is suggested by the fact that in the operation of vaso-epididymostomy when we used silk on account of the frequency with which silver broke, our successful result fell at once, and when we went back to the silver we again got about 50 per cent. of successes. Within the last year I have reoperated in three cases, two of my own and one in another city. I used silver in these three cases. One is too recent to report on, but two of these patients reoperated on with silver have been successful, and in one case a pregnancy occurred afterward. The woman had a miscarriage, but the spermatozoa persisted in quantity.

Dr. V. D. Lespinasse, Chicago: There has been absolutely no practical application made of this procedure. I have been held up on it. When I first thought of this work, I thought it would be technically very easy to make this sac and to carry out the procedure. I found there were a good many points to be considered. This work represents seventy-two operations and twenty-three technics. The making of the sac is the hard part. I have three patients now who are waiting and anxious. One man calls me up once every month and wants to know how the dogs are. As soon as I get back home I am going to get some practical experience on him. It is an old idea that the spermatozoa from the epididymis are not motile. In my own experience they are practically all motile without admixture of prostatic fluid. If the operation is done aseptically, the rubber seems to heal in place nicely. If there is the slightest infection, the rubber will slough out. The results of artificial insemination have been excellent in the hands of such men as Bozzi and Iwanoff, who were willing to take the time and trouble to do this work in the proper manner. Bozzi obtained nine impregnations out of eleven attempts, the Iwanoff impregnated animals practically every time with sperms taken from the head of the epididymis.

THE DIRECT METHOD OF INTRALARYNGEAL OPERATION*

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In presenting the subject of the direct method of intralaryngeal operation, I do not wish to be considered as championing any particular method. Every laryngologist should be familiar with every method and select for operation in the particular case the method which suits best his personal equation for that case.

The indirect, or mirror, method can be used only in adults. Its greatest disadvantage is that in the guidance of the forceps it requires a movement backward when the image shows that a movement is needed forward, and for a diagonal motion it is necessary to combine a reversed anteroposterior movement

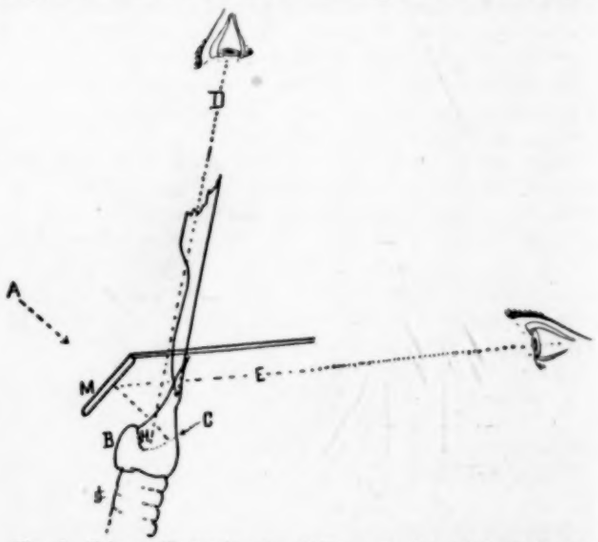

Fig. 1.—Schema illustrating the difference in the point of view by the direct and the indirect method. The observer's visual axis at *E*, looking into the mirror, *M*, gets an image as if he were looking from a point of the patient's head, *A*.

with a true lateral movement. In the direct method, all movements are under the control of the eye and are made directly. This does not mean, however, that practice is not required. Many difficulties are to be overcome by continual practice before safe and accu-

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

rate operation is possible. To begin with, the gaging of depth by one eye only presents much the same problem as in indirect operating. All general considerations and the control and cooperation of the patient, as considered by my associate, Dr. Curtis, are, of course, equally applicable to the direct method. One point that seems not to be so well understood as it should be is the fact that the direct method affords a different point of view from that obtainable by the indirect or mirror method, which will be readily understood by reference to the schema, Figure 1. Moreover, the larynx being more or less drawn on, the upper orifice is elongated, the aryepiglottic folds are rendered more prominent, the epiglottis is invisible, being hidden by the tube, and the larynx is seen at its true depth instead of foreshortened as with the mirror.

In operations for any form of stenosis of the larynx in children, such as papillomas, subglottic edema, posttracheotomic and postintubational stenosis, etc., the safety, promptness and accuracy with which intralaryngeal operation can be performed places direct laryngoscopy on a plane of advantage equaled only by its usefulness for diagnosis in these conditions. Great care must be taken in all endolaryngeal operations, direct or indirect, to impair laryngeal motility as little as possible, because as I have demonstrated, it is the tugging of the arytenoid on the cicatricial tissue that is the most important factor in the development of an adventitious vocal band.

Anesthesia.—For adults, I prefer local anesthesia with an 8 per cent. cocain solution supplemented by a few touches with a minute quantity of 20 per cent. solution to the interior of the larynx. In a few cases, for operations of extreme nicety, such as the plastic formation of adventitious vocal cords, and for the removal of benign growths which are obliterated by the ischemia produced by cocain, a general anesthetic may be necessary in adults. In children, the use of a general anesthetic in any case of stenotic laryngeal disease is extremely dangerous, because respiratory arrest is practically certain to follow as soon as the patient is sufficiently under the anesthetic to lose the aid of the voluntary accessory muscles of respiration. Tracheotomy, or what is very much better, the prompt insertion of a bronchoscope with artificial respiration and bronchoscopic oxygen insufflation, will save the patient's life; but in view of the hazardous nature of general anesthesia in this particular class of cases, which is out of proportion to the dangers of general anesthesia in the usual run of cases, I have always urged strongly in favor of no anesthesia. Cocain is extremely dangerous in children and as I have abundantly demonstrated, endolaryngeal operation is not painful and is so quickly done that anesthesia seems a needless risk. Particularly dangerous is the combination of chloroform and morphin, which are synergistic in the paralysis of respiration.

Position of the Patient.—For adults, under local anesthesia, the sitting position is preferable. Both patient and operator sit on stools, the patient being slightly lower than the operator. Sitting behind the patient is an assistant who supports the head preventing its rotation and preventing the patient from throwing the head backward (Fig. 3). If left to himself, the patient will naturally throw his head backward into the position of a man about to be shaved in a barber chair, which makes exposure of the larynx extremely difficult. An extreme forward position of the head and neck without excessive extension is preferable. The recumbent position is preferable in children. In operating on children without anesthesia, I have one nurse hold the knees of the patient down on the table; another nurse holds down both wrists, and the first assistant holds the patient's head high in the Boyce position of moderate extension. The degree of extension is less important than the very high position of the head (Fig. 4).

Instruments.—The operator should try all the different forms of instruments and illumination in order that he may take advantage of the particular instrument that best suits him in the particular case. I prefer the distally illuminated laryngoscope. The choice of instrument, however, is of less importance than that the operator shall have had adequate practice with it. For general operative purposes, I have found nothing superior to the tissue forceps shown in Figure 2, which have the great advantage of biting into the lateral wall with much greater facility than any form of sliding-punch forceps; lateral pressure cannot be made on a punch forceps, whereas the jaw of the tissue forceps will drag it laterally into the bite. I use duplicate forceps so that a fresh pair is handed to me immediately without delay for disengaging the extracted growth from the "basket" of the first forceps used.

Fig. 2.—Tissue forceps found most frequently useful in intralaryngeal operations by the direct method.

Asepsis.—While we cannot sterilize the field, the patient's mouth should be thoroughly cleansed with a tooth-brush and rinsed with alcohol in 20 per cent. solution, which is the best non-toxic antiseptic. The patient's head is covered with a sterile cap having an opening opposite the mouth and the operator and all his assistants go through the regular operating room sterilizing technic. The operator should wear a mask for the protection of himself as well as the patient and should provide himself with protective glasses, or his regular glasses, in duplicate, to facilitate cleansing and replacement when spattered.

Technic.—To operate efficiently with forceps requires the coordinate movement of the left hand holding the laryngoscope, leaving the right hand free to use the forceps. In order to acquire this knack of coordination, it is necessary always to practice exposing the larynx, even when done only for diagnosis, with the left hand, never with the right. If this be done, not only is coordinate use of the laryngoscope and forceps in operating acquired, but the left hand develops the knack (rather than the strength) required

for prolonged laryngeal exposure, should prolonged exposure ever be required.

Fist Stage.—The patient being in position shown in Figure 3, the operator, holding the laryngoscope in his left hand, while protecting the patient's lip by elevating it with his right index-finger, inserts the spatular extremity and depresses the tongue until the tip of the epiglottis comes into view (see schema, Fig. 5). Absolutely no effort should be made to see the larynx until the first stage of exposure and identification of the epiglottis is complete.

Fig. 3.—Position of adult patient and operator in intralaryngeal operation, first stage. After the epiglottis is exposed and passed, the patient's head is dragged downward and forward toward the operator.

Second Stage.—The spatular end is inserted slightly deeper, posterior to the epiglottis, being careful to keep the tube in the middle line, over the dorsum of the tongue. If the laryngoscope is inserted too deeply, the spatular end will get behind the arytenoid and the operator will be looking down toward the esophagus. In this event, it is necessary to start over again at the first stage.

Third Stage.—Exposure of the larynx consists in a downward and forward traction with the tip of the laryngoscope as shown by the dart in Figure 5. Under no circumstances should counterpressure be made on the upper teeth as a fulcrum. The patient's entire head must be pulled downward and forward with the laryngoscope.

Direct Laryngoscopy by the Lateral Route.—In the foregoing description, it is directed that the instrument be inserted over the dorsum of the tongue and kept in the middle line. This is essential until the operator has acquired the knack and is thoroughly familiar with all the landmarks. Considerable strength of wrist is necessary to cause displacement forward of the tissues attached to the hyoid bone, especially in stout and muscular subjects with short necks. In such patients it may not be possible to see the anterior commissure by that method. For all these reasons, I prefer the lateral route, passing the laryngoscope down at one or the other side of the tongue which rolls out to the opposite side and obviates the necessity of great displacement pressure. The side to be selected should be the one opposite to the involved laryngeal wall. By this lateral route, the anterior commissure can be exposed in any patient who can open his mouth, provided he be not allowed to throw his head backward, and provided the proper direction of traction downward and forward is maintained.

Removal of Growths from the Ventricle.—Growths whose origin is concealed in the ventricle are best exposed by the method which will be readily understood by reference to the schema, Figure 6.

Extubal Method.—For very large growths, the laryngoscope is used only to look through, the forceps being passed at the side of the laryngoscope and the closure of the jaws being under ocular control just beyond the tube mouth (Fig. 7).

Malignant Growths.—Following the initiative of Sir Felix Semon and Mr. Butlin, I have had such a high percentage of successes from thyrotomy in properly selected cases that I believe that to attempt endolaryngeal extirpation of a malignant growth would be a step backward. Therefore, endolaryngeal operation in malignancy is limited to the taking of a specimen for biopsy. For this purpose, the precision with which any desired portion of the neoplasm may be removed, along with sufficient normal tissue to give the histologist the best chance, has given to the laboratory report an approximate infallibility never before approached with the inadequate specimens usually obtained by indirect removal of a specimen.

Benign Growths.—In the removal of benign growths, the question arises whether it is better to slice the growth off even with the surface, or to bite into the apparently normal basal tissue. The first factor to be considered is the avoidance of any injury to the laryngeal motive mechanism. The arytenoids are particularly to be avoided and the muscular structures should be injured as little as possible. In case of growth involving the edge of the cord, it may be well to submit the matter to the patient for decision (Sanders), explaining to him that if the growths are sliced off even with the surface the chances of recurrence are greater than if removed more deeply, but deeper removal will temporarily impair the voice. Many patients will prefer a superficial removal, defer-

Fig. 4.—Position of patient and assistants for examination and intralaryngeal operation without anesthesia in children.

ring more radical extirpation until recurrence takes place. This is especially true of professional voice users. Other patients dread the word operation and will choose radical removal as the best chance for avoiding a second operation.

Papillomas.—Papillomas in children are by far the most common of all laryngeal growths. Thomas J. Harris[1] has had excellent results from the use of radium applied by the direct method.

1. Harris, Thomas J.: Proc. Internat. Med. Cong., Sect. 15, London. 1913.

Harmon Smith[2] has had excellent results from fulguration.

The method which has yielded the best results in my clinic is removal with the forceps through the direct laryngoscope, repeated as frequently as necessary to nip off all recurrences in the bud. A little of the basal, apparently normal, mucosa is removed along with the growth. The superficially cicatricial mucosa which eventually results is an exceedingly

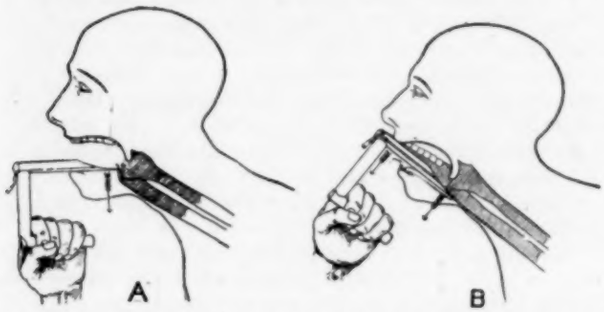

Fig. 5.—Schema showing the first and third stages of laryngeal exposure. At *A*, the tongue is seen depressed as indicated by the dart, causing the epiglottis to project into the line of vision. The second stage, not shown here, consists in a deeper insertion of the tube. At *B* is shown the third stage, the drawing forward of the epiglottis and all the tissues attached to the hyoid bone with the tip of the spatular end. The left hand is always used for holding the laryngoscope.

unfavorable soil for the growth of papillomas, and recurrences cease after a number of removals. Occasionally a single removal is successful, a number of cases being known to be free from recurrence at the end of from one to eight years. In the majority of cases, however, many removals are necessary; but as they are done without any anesthesia, general or local, frequent operation at close intervals is unobjectionable. After a few sittings, most of the children do not resist or even cry. In the interval between operations, the local application of alcohol, as recommended by Delavan many years ago, hastens the hardening process. An alcoholic solution of salicylic acid, used by E. L. Jones, is also an excellent application.

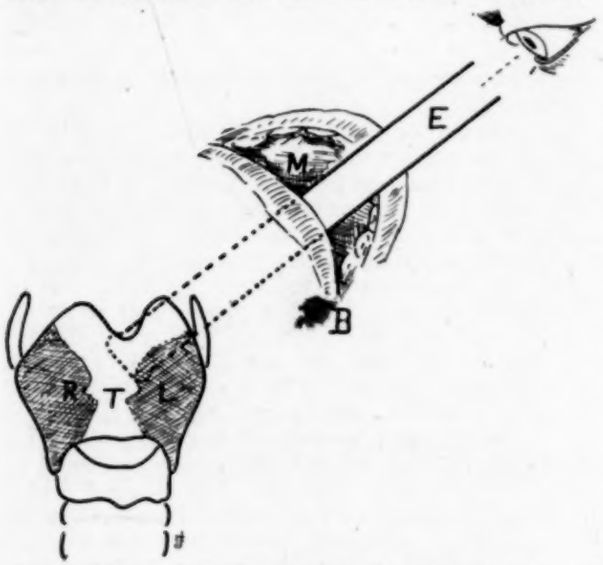

Fig. 6.—Schematic illustration of manner of exposing a tumor located in the laryngeal ventricle. The larynx is fixed by the hand of an assistant externally while the head of the patient is drawn down laterally to the side opposite the ventricle containing the tumor.

2. Smith, Harmon: Laryngoscope, February, 1909.

It is necessary to remember that there are two general classes of cases: In some instances a single removal is sufficient; in others a most stubborn tendency to recurrence is manifest, papillomas of children being more persistently recurrent than those of adults.

Laryngeal Stenosis.—Laryngeal stenosis, when hypertrophic in character, may be excised with the forceps when it overhangs the upper orifice of the larynx. Subglottic hypertrophic stenosis, as I have abundantly demonstrated, is readily amenable to galvanocautery treatment, the incisions being parallel to the long axis of the trachea and into the most prominent portion of the hypertrophy. Care should be taken not to cauterize deeply and not to touch the cords.

Laryngeal Tuberculosis.—Galvanocautery puncture for the treatment of laryngeal tuberculosis in all patients whose pulmonary condition is not too far advanced has yielded excellent results when indirectly applied by Heryng, Hajek, Mermod and Bar. Intralaryngeal applications as shown by Kahler can be made perpendicular to the surface by the direct method instead of the more or less linear application usually made with the mirror. This disadvantage of the indirect method can be overcome by using the right-angled point as advocated by Sir St. Clair Thomson.

Cicatricial and Congenital Webs of the Larynx.—Webs may be removed by the punch forceps provided there is a large redundancy of tissue. When the web is thin and tense, without redundancy, the incision with a view to the plastic formation of an adventitious vocal band, using the long straight direct laryngeal knife, will yield most excellent results as to the cure of the stenosis and restoration of the voice.

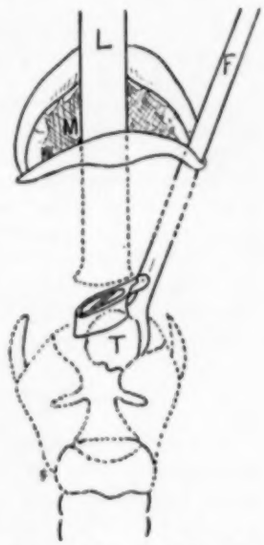

Fig. 7.—The author's "extubal" method for endoscopic removal of the epiglottis and growths originating in the upper orifice of the larynx. This method renders easy the removal of very large tumors that formerly required subhyoid pharyngotomy. It is not used for small growths. The forceps, *F*, seize the tumor, *T*, under guidance of the eye looking through the tube, *L*.

CONCLUSIONS

1. The direct method is the only one by which the larynx in children can be operated on.

2. The indirect, or mirror, method is applicable only to adults. The reversal of the image sagittally, without reversal laterally, compels the operator to develop the ability to move his forceps backward when the image appears to require the forward direction; and, more difficult still, is the necessity to combine for diagonal movement a reversed anteroposterior with a true lateral movement.

3. The difficulties to be surmounted by the direct method of intralaryngeal operation require prolonged and constant practice, but not nearly to the same extent as required by the mirror method.

4. No anesthetic, general or local, is necessary for operations on the larynx in children. In them, cocain is dangerous in any case, and general anesthesia is absolutely contra-indicated in all cases with even the

slightest degree of laryngeal stenosis. Local anesthesia should be used in adults, general anesthesia, preferably with ether, being required only when cocain is contra-indicated or when the ischemia accompanying its use causes the growth to shrink to such an extent as to hinder accurate removal.

5. No one method can be said to be best for all cases and all operators. The laryngologist should try all methods and instruments so that he may decide for himself what best suits his personal equation and be prepared to use the method which, in his hands, is best adapted to the particular case.

6. Finally, any one who has the skill of Holbrook Curtis in the removal of benign growths by the indirect method, or of Thomas J. Harris in the indirect method of application of laryngeal galvanopuncture, will have no need of the direct method of intralaryngeal operation in adult patients.

Ninth and Penn Avenue.

INDIRECT INTRALARYNGEAL METHOD FOR REMOVAL OF BENIGN NEOPLASMS *

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In his book on diseases of the throat, Solis-Cohen[1] quotes two cases of removal of laryngeal growths through the mouth, one by Koderick of Brussels in 1750, the other by Green of New York in 1845. These were done in antelaryngoscopic days, but no details are given. In the literature, but seventy cases are mentioned before the invention of the laryngoscope. In Sir Morell Mackenzie's list of 100 cases of laryngeal tumors operated on by him, and reported in 1880, sixty-seven were said to have been papillomas. Of sixty-six consecutive cases operated on by Solis-Cohen, reported in 1871, forty-eight were assumed to be papillomatous in origin.

According to Cohen and Mackenzie, next in frequency occur the fibromas. Moritz Schmidt, however, quotes the frequency of fibromas to papillomas of the larynx in 32,997 clinical cases examined to be 256 to 46; they usually occur singly and are apt to be redder in color and are not usually pediculate. Myxomatous fibromas are usually larger, attaining the size of a Lima-bean or even greater. They are generally pediculate and paler in color; they may be globular or pyriform in shape, and occur on the epiglottis as well as on the cords. They are rarely encountered. True myxomas are also but seldom found. Sir Morell Mackenzie reports but one in his 100 consecutive cases of laryngeal growths. They are translucent semipink or reddish, and generally pediculate, varying much in size. Their most frequent seat is in the anterior commissure of the cord.

Angiomas are purple in color and occur on the ventricular bands and epiglottis, rarely on the cords.

Lipomas may occur on the arytenoids, epiglottis or ventricular bands. They are characteristic yellow tumors.

Cystomas may occur on the epiglottis or on the ventricular bands and more rarely on the cords. They are usually sessile, translucent and pale in color, and of semifluid contents.

Chondromas are made up of hyaline cells and are cartilaginous in origin, usually springing from the cricoid, thyroid, epiglottis or arytenoid cartilages.

Singers' nodules (chorditis nodosa) occur on the vocal cords at the junction of the anterior and middle third; they are usually bilateral and are composed of stratified epithelium.

Polypi present the appearance of the usual polyp.

Pachydermia are of epithelial origin and attain a much larger size than an epithelial nodule on the cord. They are found most frequently in the posterior portion of the cords, invading the respiratory tract. A peculiar characteristic seems to be that they are usually bilateral, and the conical apex of one fits into a depression in the other, or in case they are on one cord, the hard apex makes a corresponding depression in the other band.

Sarcomas present no especial feature to the unaided eye. Cohen states that removal of a benign growth through the mouth is much less apt to terminate fatally than through external openings and that recurrence is less likely to follow.

Sessile papillomas are apt to return after operative procedure, if the seat of the wound is not sufficiently cauterized after the removal of the growth. This may be accomplished by Tobold's concealed silver nitrate stick, or by chromic acid fused on a laryngeal probe.

The instruments used for removal of laryngeal growths by the indirect method have not been improved on very much since 1880. The methods of removal advocated by most writers include the forceps, cauterization by acids or silver nitrate, and by the galvanocautery. In the local treatment of papillomas, Dundas Grant has spoken well of the continued application of a 2 to 5 per cent. solution of salicylic acid in absolute alcohol, while Delavan has reported a case of multiple papilloma cured by a spray of absolute alcohol used six times daily.

In speaking of the growths which occur in the larynx, it is not my intention to advocate the indirect intralaryngeal method in their removal. I have been asked simply to demonstrate the possibilities achieved by deftness as a result of experience, and speak of the instruments which are generally employed.

Of the numerous instruments invented for the removal of laryngeal benign neoplasms, we must first mention the laryngeal snare of Carmalt Jones, and that of Gibb, and also the port-caustic of Jarvis, and that of Tobold, as well as the sponge probang first mentioned by Voltolini. Fauvel was the first operator to devise the laryngeal forceps, which were modified and improved by Sir Morell Mackenzie. These are described by Lennox Browne.[2] The guarded forceps of Dundas Grant is an instrument of special value in the removal of pediculate growths on the cords. The universal forceps of Watson Williams are in certain cases to be recommended. Sir Morell Mackenzie's cog-wheel ecraseur must not be overlooked nor the various snares of many other authors, described by Watson Williams.[3] Curets are of use in removing growths of a sessile variety, and those occurring beneath the anterior commissure. Heryng has constructed a variety of these, as have many operators. The Krause-Heryng double curet forceps[4] are used in

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Solis-Cohen: Diseases of the Throat. New York, William Wood & Co.
2. Browne, Lennox: Throat and Nose, Ed. 4, 1893, p. 131.
3. Williams, Watson: Diseases of the Respiratory Tract, 1901, p. 224.
4. Ballenger: Diseases of the Nose, Throat and Ear, p. 522.

Europe, but seldom in this country. The first of this kind of forceps was invented by Stoerk, and modified by Schroetter, both of Vienna; Mackenzie,[5] who describes them in his text-book, also invented a tube forceps, a wire within operating on one or both blades. Gottstein's laryngeal forceps[6] had their place in the evolution of the instruments employed in the early eighties. To-day, however, we have gone back to the general shapes of Fauvel and Mackenzie, and I will present some of the modern modifications of the same, and especially the universal handle of Meyrowitz with laryngeal and sphenoid tips of Krauss and Cordes.

Various forms of epiglottis lifters have been devised for the better observation of the larynx during operative procedures. Among the best are Mount Bleyer's and Escat's.[7] These instruments are of the greatest assistance in cases in which an overhanging epiglottis is encountered. A downward and forward pressure at the base of the tongue in front of the epiglottis causes the latter to assume the perpendicular. These instruments are very useful in cautery work.

The preparation of the patient for operation is a simple one:

Cleanse the throat and larynx with an alkaline spray, and then spray into the larynx a 4 per cent. cocain muriate solution in small quantity. Touch the uvula, pillars and posterior pharyngeal wall with the same solution with a cotton applicator, and massage these parts with the applicator to accustom the throat to the feel of the instrument. Have the patient hold out the tongue with a napkin, or have an assistant, in case the epiglottis is in the way, use an Escat epiglottis lifter. The head of the patient should be steadied by a nurse and the instrument introduced, by daily practice if necessary, until all fear on the part of the patient is overcome. In operating it is well to educate the patient to use the vowel sound *A*, changing to *E* without moving the tongue. The *A* changing to *E* brings the cords on the highest plane possible, and gives the best view of them in their fullest extent. Then without dropping the cords and in the *E* emission, at the command, "Now," the patient should be taught to take a deep breath suddenly without making any sound or body movement, and with complete relaxation. At that instant the forceps are introduced and the growth is seized. This applies to subglottic growths and those on the border of the cords. Growths situated on the upper surface are removed during the *E* emission. It is surprising how skilful one may become in this procedure, so much so, that having habituated oneself to this method, direct laryngoscopy seems really more difficult.

5. Mackenzie: Diseases of the Throat and Nose, 1880, p. 187.
6. Bosworth: Diseases of the Nose and Throat, 1892, p. 735.
7. Grant, Dundas: Brit. Jour. Laryn., Rhinol. and Otol., December, 1904.

The Pulpit on the Medical Profession.—As St. Luke's day fell on Sunday this year (October 18), the "praise of the physician as the servant of God" was the theme of many sermons. Dr. Prince of Chicago spoke from this text, saying that "the tendency in certain circles to-day to ignore the physician is a monstrosity." He compared the physician to the Panama Canal, the link uniting the ocean of man's need with the ocean of the power of God, defining the power of God in part as the "mastery of the spirit over the body." He said that the gain in the last fifteen years is this, namely, that "we have ceased to defend the absence of miracles in modern days. The 'faith' of many persons does not reach beyond the physician, but to ignore the physician and his science is to ignore the provisions of health, just as if we should ignore and do without the sunshine."

METHOD OF SUSPENSION (KILLIAN)

DEMONSTRATION OF THE LATEST FORM OF THE APPARATUS *

ROSS HALL SKILLERN, M.D.
PHILADELPHIA

CHOICE OF ANESTHESIA

After trying cocain, scopolamin and ether I and my associates unhesitatingly state that ether is by far the anesthetic of choice. Scopolamin has not been a success in our hands, although the technic as laid down by Killian, with even greater dosage, has been adhered to. Whether this lack of sufficient action has been due to the drug or to the difference in racial characteristics between the German and American, I am at loss to say. In our cases the patients were made only drowsy although 1/200 grain was twice and even three times administered in conjunction with morphin (1/64 grain), and in each instance it was necessary to resort to ether. The best form of administering the ether is the colonic method. The patient need not be apprised of the fact that he is being etherized and in this manner no apprehension on his part need exist.

DIFFICULTIES ENCOUNTERED

1. *Patients*—In order to procure a perfect view of the glottis it is almost necessary that the patient have a long, slender and supple neck. On this account this method of procedure is particularly adaptable to children as in practically every patient under the age of 12 we have been able to procure a good view of the anterior commissure. In short, thick-set individuals it is particularly difficult, and in older people with arthrosis it is absolutely contra-indicated. A good idea of its practicability on a given individual can be obtained by first endeavoring to examine him with the direct laryngoscope.

2. *Lights*—Either reflection from the indirect mirror, the headlight, or a light on the apparatus may be used. In our clinic the latter has been almost exclusively applied with almost complete satisfaction so far as illumination is concerned. The only fault at present is the tendency to slip off the mouth-piece and always at the most inopportune moment. If this mechanical fault were eliminated the device would be practically perfect.

3. *Operating-Room*—A special room is a great advantage although not absolutely imperative. The table on which the apparatus is fixed must be suitable for the purpose and adaptable to raising and lowering, as the operator is seated and must have his eyes on a level with the long axis of the patient's trachea. Arrangement of the theostat, instrument tables, etc., should always be approximately the same. A most important factor is darkening the room. In many of our modern general operating-rooms this is impossible.

INTRODUCTION OF INSTRUMENT

Care must be exercised in introducing the spatula, otherwise the following accidents may occur:

1. The spatula may not be deep enough, thus forcing the base of the tongue backward and obscuring the view to the glottis.

2. The spatula may not be in the median line of the tongue, causing a lateral bulging.

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

3. The spatula chosen may be too short so as to prevent the epiglottis holder from properly acting.

4. The clamp on teeth must be fixed and padded, otherwise the incisor teeth may be forced loose.

5. The spatula must not be forced into the mouth as the posterior pharyngeal wall may be lacerated.

6. While the patient is swinging, coughing must be guarded against as the hook may be thrown off the bar.

7. The patient in swinging position should have the shoulders resting on the table.

ADVANTAGES

1. A direct view of the larynx is continually present.

2. The operator is seated in a comfortable position.

3. The field is continuously illuminated.

4. A sufficient amount of working room for both hands is obtained.

5. The upper air-passages cannot be flooded with blood.

6. There is no danger of inspiration of blood or pieces of tissue.

PARTICULAR INDICATIONS FOR USE

1. Removal of intralaryngeal growth and hypertrophies.

2. Removal of foreign bodies in larynx and mouth of esophagus.

3. Curettage of larynx.

4. Diagnostic purposes.

2032 Chestnut Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CURTIS, JACKSON AND SKILLERN

Dr. Robert Levy, Denver: The present generation, as distinguished from the older one that was expert in the indirect method, and that studied under the old masters, has something also to offer in the way of laryngologic skill. Among the younger men there are many whose early training, even within the past ten years, was sufficient to enable them to remove intralaryngeal growths by the indirect method. This in no way detracts from the importance of the direct method and the work of the early operators, but there is still much attention paid in the training of our specialists to the use of the mirror and manipulation by the indirect method; so that while the number of experts with the direct method become more numerous, nevertheless there are more men who are expert in the use of a mirror and the indirect use of the forceps than with the instruments used in endoscopy. So long as our teaching still enables us to perform operations with the mirror this method of removing growths and performing other manipulations within the larynx must of necessity continue. I would not in any way detract from the advantages of endoscopy. Many improvements have been made in the instruments since 1880 and Curtis has shown some. The double curet particularly is a great improvement. Another instrument of great value is the Schlinamann forceps, an instrument which has at its extremity a small curve, so that the instrument may be placed in any position. It is capable of great nicety of manipulation. The overhanging epiglottis may be controlled by the Escat depressor but more satisfactorily in some instances by putting a ligature through the epiglottis. Then it is absolutely under control. This is particularly useful in operating under general anesthesia. Another method of operating within the larynx and one especially useful in large tumors is by means of the snare used in the following manner. Through the loop of wire one passes first a pair of laryngeal forceps the handle of which may be locked. The tumor is firmly held by the forceps and the snare-loop drawn completely over the growth. Gentle traction by an assistant draws the tumor by means of the forceps well into the loop at the same time that the operator passes the loop around the tumor. In this way the complete removal of a sessile growth is readily accomplished. One method Dr. Skillern did not speak of, though I am sure he has it in his paper, is that of bringing the anterior commissure into view by making counter pressure over the thyroid cartilage; another thing is that suspension is especially valuable in the case of children. There is no other method by which the child can be so easily operated on as by this one. With reference to anesthesia, Dr. Skillern said he used ether by preference. I question whether he would administer ether in every case to an adult on whom he desired to perform some simple procedure under suspension.

Dr. Harris P. Mosher, Boston: Naturally, when this procedure came in, rather extravagant claims were made for it. It has been in use now for a number of years and I think the consensus of opinion is that we need to modify those claims but little and that is saying a great deal for a new procedure. It is one of our great advances in the work on the larynx and upper end of the esophagus. Dr. Murphy said to me when this first came out, "What we need is simplification of the apparatus." It is rather complicated. If we can simplify the instrument or procedure in any way, it will be well worth while. I am familiar with the open speculum and tried to do what I could to modify that speculum and I think I can claim that now in 90 per cent. of cases it will work for this method of inspecting the larynx. When the procedure was introduced it was to be used under cocain. I am glad it has been changed to a procedure under general anesthesia, because I work practically always with general anesthesia. The satisfaction of seeing the cords right in front of one and of watching the rhythmic movements is beyond expression.

Dr. Lynch of New Orleans, who recently read a paper at the meeting of the Laryngological, Otological and Rhinological Society, has markedly extended the procedure and has devised instruments for dissecting out growths, papillomas, etc., in the larynx, and I feel that that is a great advance in the use of the suspension method. As for the removal of tonsils in this way, every one who speaks of it says that the tonsils can easily be removed by the suspension method.

Dr. Sidney Yankauer, New York: I have used the suspension apparatus ever since it was first brought out by Killian and I endorse all that Dr. Skillern has said about the advantages of the use of this method for intralaryngeal work. I do not quite agree with Dr. Skillern about the particular instrument used. I had the original instrument as it was first brought out by Killian, and also this later model. The later model is much more complicated than the original and I find that with the original instrument and spatula I can bring the anterior commissure into view in practically every case without making counter pressure, and in every case with the aid of counter pressure. With the newer apparatus I haven't been so successful in this. The epiglottis lifter seems to be rather in the way. The tooth plate on the newer apparatus is larger and longer and gets in the line of vision. Killian uses the method very much in the removal of tuberculous lesions, which are generally in the anterior commissure. About a year ago I operated in a case of carcinoma of the epiglottis and the manner of the removal of the growth was so entirely different from anything that could have been previously done and the success was so much greater than by any other method that there was no question about the great advantage of this method. At the recent meeting of the Laryngological, Otological and Rhinological Society the removal of foreign bodies by the introduction of the bronchoscope with the suspension apparatus was spoken of. Some time ago I had a case of a tumor on the posterior wall of the trachea and tried this method. While I was able to remove the growth I was not quite satisfied with the aspect of the posterior wall and tried to introduce the tube, but the larynx first comes forward and then makes a bend downward and I could not get behind that curve with the

tube. Recently a patient was seen who said he had swallowed a fish bone. It was just below the cricoid cartilage. It was removed under local anesthesia by the suspension method. I can endorse what Dr. Skillern says about the introduction of the open tube into the esophagus being easier with the suspension apparatus, as it partly opens the esophagus, but after the entrance of the tube all advantage of the suspension method is lost and it is in the way. In the case in question I failed to see the foreign body and could only see the anterior wall and part of the lumen; I could not see the posterior wall. Therefore, the only advantage in passing the esophagoscope with the suspension method is the ease of introduction, but by this the mobility of the tube is sacrificed. If the extraction is difficult or the foreign body is against the posterior wall, the suspension apparatus interferes with movement of the tube and that is a very important objection.

DR. THOMAS E. CARMODY, Denver: I am glad to hear Dr. Yankauer speak of operating on the epiglottis. I have used this instrument about fifteen months and have examined some cases of tuberculosis in which we wished to remove the epiglottis, but being more familiar with the indirect method I used that. The experience of Dr. Yankauer as to impaired movement of the esophagoscope after introduction with the suspension apparatus has been mine also. There are two modifications, one of Lockard's, which has an eyelet so that the horizontal portion can be separated; the other is a vulcanite rubber pad on the tooth plate. This must of necessity be of the soft or velum rubber so as to conform to the shape of teeth or anterior part of the palate.

DR. E. J. BERNSTEIN, Kalamazoo, Mich.: We are indebted to Dr. Curtis for his views regarding singers' nodes and his method of treating them. Just how much does Dr. Jackson think there is in Dr. MacKenzie's criticism of taking off a slice of growth for diagnosis? Most of us feel there is great danger in excising a portion of any growth for diagnostic purposes, as it may likely cause absorption by the lymphatics and bring about metastases elsewhere. I know such is the view in major surgery. In removing the breast for malignant growths, the surgeons first attach and tie off the arteries, veins and glands remote from the breast and cut wide and away from all involved structures.

DR. H. W. RIDPATH, Indianapolis: One can readily see that, in the removal of tonsils by the suspension method, the stretching open of the mouth in this position will bring considerable tension on the anterior and posterior pillars. That forces a portion of the tonsil into the median line and it will be found that the superior portion of the tonsil is drawn back into the cavity; therefore, in enucleating tonsils by this method one must be careful to get the superior lobe out, as otherwise it will be overlooked. One other point. We have in our clinic several patients in whom the tonsils had been partially removed or massacred by some other operator, and who were brought in to the hospital in a serious condition as to bleeding. On two occasions it was impossible for us to stop the bleeding by ordinary means, due to the amount of hemorrhage. The patient was put in the position in which blood would go down into the postnasal space and one could get a clear field and ligate without difficulty. One of our patients I am sure would have bled to death if we had not as a last resort used this method.

DR. OTTO T. FREER, Chicago: The direct method of entering the larynx has merely added to our powers, it does not supplant the older way of operating with the mirror; and to be an expert the operator must be trained in both methods. The use of the spatula tubes employed for direct laryngoscopy puts a strain on the muscles attached to the hyoid bone and on the thyrohyoid and hyo-epiglottic ligaments. This strain is borne by some patients with but little discomfort, but others suffer a good deal when much force is needed to get a direct view. However brilliantly done, direct laryngoscopy is a forcible entry into the larynx, while the indirect method has the advantage of entering along the natural curves. It is therefore incomparably the more elegant and gentle way and merely because he has not learned it, the operator has no excuse to turn to the rougher direct way in order to remove a papilloma from the cords or a foreign body from the larynx. I reserve the direct method for cases in which I cannot operate with the mirror as in the case of children. In younger children, because of the smallness of their laryngeal lumina and their ready closure by swelling, it is best to precede an intralaryngeal operation, as for laryngeal papilloma, for instance, by a tracheotomy. I have always used this precaution, and twice, once in an operation on a child for laryngeal papilloma and again in a case of a bone in the larynx, although all gentleness and speed were used, the larynx closed by swelling for a day or two and I was glad that I had my tracheal tube in place. I have heard of others, good operators, who have had to do a hurried tracheotomy after an intralaryngeal operation on a child and in one case the operator was too late. In holding the cutting forceps for operating with the mirror it is customary for many to enter the rings of the usual scissors-handle by placing the thumb in the uppermost ring. This hinders wrist flexion and so prevents the operator from reaching the anterior commissure with the beak of the forceps. When the thumb is placed in the lower ring and the index finger in the upper, flexion becomes easy and all parts of the larynx can be reached without effort.

DR. GEORGE F. COTT, Buffalo: One point which has not been brought out is the matter of tolerance of the larynx in children; how long will it tolerate manipulation? I had a sad experience in this connection: a child had a key in the esophagus for a week. I introduced the esophagoscope but could not find the foreign body, although roentgenoscopy showed where it was. The swelling was so great I could not see it. I worked a half hour and then decided to do a lateral esophagotomy, which I did. It took but a short time and the key was removed, but that night the child suddenly died without any apparent cause. I found out later that another physician had worked on the child for an hour or more by the indirect method before I saw it. Had I known that, I would not have subjected it to such a continued shock.

DR. A. B. THRASHER, Cincinnati: Dr. Curtis has partially repaid a very old debt which we laryngologists have so long owed to a singing-teacher, E. Garcia, for the discovery of the laryngoscope. Now a laryngologist teaches the proper singing method for the prevention and removal of singers' nodes. I turn these cases over to a singing-teacher with the instructions which Dr. Curtis has given us.

DR. W. B. CHAMBERLIN, Cleveland: Although my early training and instruction was in the indirect method, I have used the direct method almost from its beginning. I am in favor, however, of the indirect method in suitable cases. It is certainly a much less formidable operation than the direct method. I fancy that if any one of us were offered his choice of the methods on himself, he would unquestionably choose the indirect, granting, of course, that it were applicable to the particular case. Not long ago I was able to remove very easily a pedunculated tumor from beneath the cords at the anterior commissure in this way. There is an opinion among men who have been trained in the direct method that the indirect method is difficult. That is not so. It is no more difficult than the methods which the dentist uses every day in his operations on the teeth. Take a wide-mouthed morphin bottle, cover it with dark paper, and on the bottom sketch a larynx, then place a shot or pin in any position and one can practice the indirect method to one's heart's content.

DR. BURT R. SHURLY, Detroit: Those of us who have used the indirect method for many years have a certain amount of sentiment concerning this method, and we sincerely trust that it never will become a lost art. There are a great many things one can do by this method first, and then if not successful one can use the direct method if necessary.

DR. C. G. DWIGHT, Madison, Wis.: The otolaryngologist who lives in a large city knows very little of the disadvantages encountered when the general surgeon has first had the case. Most of my work is in the removal of foreign bodies. I had in one case a Catholic sister who had lodged in her throat a black-headed pin such as they use to fasten their bonnets. The patient had been in the hands of a general surgeon three hours before I was called to see her. The pin was

lodged straight across and imbedded. Of five different instruments none were powerful enought to detach it because it was so firmly imbedded. I broke two instruments in the attempt. This led me to devise an instrument which is useful for grasping pins of this type. The delicate instruments we have for grasping growths, etc., are very perfect, but we need something stronger to remove these firmly-imbedded things.

Dr. Holbrook Curtis, New York: I am glad to see that there are so many advocates of the old method. I agree with Dr. Freer that we should be expert in both. No laryngologist can afford to neglect the opportunities in which he can use the indirect method. With regard to practicing the indirect method, I have taken an old pin-cushion and put it at the bottom of a three-inch iron tube and then practiced picking the pins out one by one, using a laryngoscope and forceps.

Dr. Chevalier Jackson, Pittsburgh: In reply to Dr. Bernstein's question with regard to the removal of a specimen in malignant cases, as Sir Felix Semon pointed out years ago, it is unwise to remove a specimen in any case that, clinically, seems to be malignant unless the patient has consented to immediate operation in the event that the specimen proves malignant. The question should be submitted to the patient beforehand. If he declines external operation, which is the only route in malignancy, then no specimen should be taken. If consent has been obtained, preparation must be made to operate immediately, as soon as we get the report on the frozen section, which we can get now on the same day that the specimen is taken. There is little risk of metastases resulting if operation immediately follows.

Dr. Ross H. Skillern, Philadelphia: Dr. Levy spoke of this method not being used in the simple procedures in the larynx, such as making examinations and removing papillomas, under ether. We have tried it without ether and have succeeded. So far as Dr. Mosher is concerned, he is too modest to state that he perfected an instrument of his own and had I seen it first the Killian instrument would not have been in our armamentarium. I had the pleasure of seeing his work, and later the work in the Chariteé in Berlin, the home of this method, and had I to have the method used on me I should prefer to go to Boston. As to the removal of foreign bodies by this method, we have in the last month removed a number of such bodies and it progressed very nicely, except the last case, a penny in the esophagus. We saw it very beautifully and demonstrated it to several physicians in the room with a great deal of pride, but the pride went just before a fall because when we went after it it went down and down and finally passed into the stomach. Dr. Ridpath spoke of the enucleation of tonsils by this method. In that respect one thing is notable: the remarkably small amount of hemorrhage when this method is used. It is due to pressure on the tongue and some of the vessels that supply the tonsil. As soon as we take the tonsil out the blood seems to start up but is soon controlled. Dr. Freer spoke of the matter of soreness of the throat after the employment of this method. In 100 or 150 cases the children did not complain of any particular soreness. I have asked them frequently. Some of the adults complained of a certain amount of stiffness in the neck. I am not advocating any particular method in every case. We must select the method that is suitable for the case in hand.

The Medical Profession and the Eradication of Disease.—People say there must be a "nigger in the woodpile" somewhere, that the medical profession should strive to reduce illness, for it is thereby they make their living. I will acknowledge the doctor is a queer beast, but his mission in life is not to accumulate any great wealth, but to eradicate disease, and that alone will make him happy. I deny most emphatically that money is the strongest motive that moves the mass of mankind. I will admit that anything that requires money is not easily accomplished, but a good lawyer, if you will go to him with your case, will advise you in the majority of instances not to litigate, and a good preacher will try to save your soul before it gets past saving; and the good doctor rejoices much when he can keep you well.—Victor C. Vaughan, *Jour. Indiana State Med. Assn.*

HEALTH SERVICES IN AMERICAN COLLEGES AND UNIVERSITIES

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The wide-spread interest in the economy of health conservation has placed this consideration of medicine on a sound basis. The means to this end are being socialized because it is of public concern. It is significant that this broad consideration of health and disease has crystallized early around our educational institutions.

In our colleges this work has assumed the form of variously organized health services. These services provide for care of individual sick students, but recognize instruction, inspection, and the preservation of health as equally important work.

GENERAL METHODS

All university health services have certain uniformity of methods since they have similar aims in view. Differences apply to peculiar local conditions and policies.

A general policy is to provide easily accessible medical attention to the student, with instruction and preventive service. Medical attention is also provided for the faculty and officers in a few services.

The staff usually consists of a university physician, health officer, or medical adviser, as he is variously designated, with assistants as required, often including a woman physician.

A committee of the faculty often serves with the staff as directors.

At most places convenient quarters are provided where examinations and office treatments are supplied. A number of services provide for bed patients in student hospitals spoken of as infirmaries. A medical department in a school is a great help to the student service.

The expense of this work is usually provided for by a general student fee. The connection of staff members with the teaching faculty provides for part of the salaries, from the institution.

ENDOWED AND PRIVATE INSTITUTIONS

The older health services at the endowed schools have as a rule been slower in development and more conservative in their policies than the leaders among state universities. As a class they have better infirmary facilities, but are less active in dispensary and inspection work.

Princeton

Since 1893 an infirmary has been maintained at this institution for the exclusive care of students in illness. There have been recent plans for a new building in the work. The infirmary is endowed and has about thirty beds. Hours are kept for office consultations, which average about fifteen daily. There are 1,500 students, who pay an annual fee of $7 each, for which they receive consultation and treatment with limited time in the infirmary where at request they may have local physician of choice and special nursing at their own expense.

There have been about four hundred bed patients annually. The examination of freshmen at the gymnasium is especially well done by Dr. Joseph Rycroft, who is much interested in this work. General inspection has been provided for by the local health officer,

whose salary has been paid in part by the university. Dr. Conochan is in charge of the clinical work.

Harvard

The service was established here in 1894. It is now in charge of Dr. H. M. Bailey, who has no assistants and devotes most of his time to the work. Students at Cambridge pay $4 a year as general tax, which provides for office consultations, treatment and limited care in the infirmary. Dispensary consultations averave about twelve daily, including calls at the rooms as requested. The dispensary is located in one of the dormitory buildings on the campus.

The infirmary is a splendid new building, well endowed and thoroughly modern in every respect. It has sixty-five beds, about one half of which can be used for isolation purposes. Patients are given ordinary nursing except as they provide for themselves. They usually have outside physicians while in the infirmary, although the university physician cares for those unable to pay. There is an average of about five hundred infirmary patients annually.

Examination of entrants is done by the physical director, and is limited to a consideration of their physical exercise and athletic work. No lectures in hygiene are required.

Cornell

Since 1911 an organized service has been in operation at Ithaca. A general fee of $6 is received from about 4,600 students. Three physicians, including one woman, see an average of sixty patients daily for consultation and care of minor troubles. Major cases requiring continued treatment are referred to local physicians. Advisory calls are made at the rooms.

An infirmary is maintained with sixty beds, where two weeks' ordinary care is given. Patients pay physician of choice for all services, medicines, and supplies. There were 1,041 bed patients during the last year. Examination of freshmen is compulsory and lectures on hygiene are optional. The service has complete medical care and examination of athletes. Dr. S. Munford is in charge.

Columbia

A service has been established here during the past year. Dr. W. H. McCastline keeps hours twice daily, caring for about thirty students. A well-equipped dispensary is maintained in one of the campus buildings. The service is rapidly extending although there has been no definite provision whereby the service can give infirmary privileges to bed patients. No fee has been charged of the student as the dispensary has been established and maintained by the university. Examination of entrants is limited to that in the gymnasium, and no general lectures in hygiene are required.

Yale

The conservatism in this work is especially felt by those most interested in the health of the students at Yale. A suitable endowed infirmary is maintained in charge of a nurse matron. Students pay $1.50 a day for ordinary care and employ their own physician and special nursing. There is no organized student health service, and Dr. W. G. Anderson as gymnasium director has been able to do but little in the way of medical examination and instruction in hygiene. That an organized service could do a splendid work at Yale is the conclusion from my recent visit there.

Stanford

The work here has no organization as a definite service. The provision for the student health is supervised in general by a committee of the faculty. This committee is responsible to the president for the public health of the campus. They inspect rooming-houses enforce vaccination, and do some detailed work through the medical advisers who are directors of the gymnasia.

The medical advisers, one woman and one man, act in an advisory capacity in connection with their work in the gymnasia. They do no treatment, but examine entrants in relation to their gymnasium work. Bed patients are provided for by an organization of students known as a hospital guild. This is supervised by a faculty committee, and membership is compulsory for each student at $4 per year. This entitles the student to ordinary hospital care in a local hospital, except for contagious cases, which are provided for otherwise by the guild. Medical care, private rooms and special nurses are not furnished the patient.

Chicago

During 1911 a committee of the faculty of the University of Chicago was appointed to investigate student health problems. A thorough study was made of their own situation as well as systems then in operation at other schools.

Their report emphasized the obligation of a university in the provision for good health among its students. The sanitary condition of their university was pointed out; the general policies and methods of other institutions were shown. The recommendations of this committee were to the effect that there was need for an organized service to coordinate the activities of the various departments of the university whose work touched on sanitation. They recommended the maintenance of an infirmary for students; that general instruction by lectures be developed by the health officer for new students and that such entrants be given a medical examination on matriculation. They asked that consultation hours be maintained for sick students and that vaccination be enforced.

A recent report is to the effect that the university has not undertaken the care for sick students since October, 1912, up to which time there had been a university physician. A committee of the faculty supervises sanitation and the gymnasium directors do some medical work among the students incidentally. Freshmen are examined at the gymnasia and are required to attend lectures on hygiene during the first quarter. The policy seems to be not to assume responsibility in caring for sick students.

Williams

A twenty-four-bed infirmary is maintained for students, faculty, and their families at a rate of $1.50 per day for the patient.

The staff is composed of three local physicians, one or whom, Dr. F. H. Howard, delivers compulsory lectures on hygiene and examines entrants. Other physicians care for infirmary patients at request of parents. There is no general fee and no dispensary work is done.

Massachusetts Institute of Technology

At this school the 1,700 students pay no fee. They may consult a college physician during certain hours. The medical adviser delivers lectures to first year students.

Pennsylvania

The University of Pennsylvania has no organized health service. The need of it there is felt by those most in touch with student health. The ample facilities at the university hospital on the campus have supplied this want with certain satisfaction. The exclusive ward for students makes a suitable arrangement for cases requiring bed care. The patient pays a nominal fee for ordinary care. The medical attention is supplied by the hospital staff.

Haverford College

For a small school the service is especially commendable. The students contributed a sum of money and a beautiful infirmary building, well equipped, has been established by added endowment. Dr. J. A. Babbit is teacher of biology, director of the gymnasium, and college physician. The cooperation of these departments is a special feature of this excellent service.

Culver Military Academy

As an instance of the provision made in boys' preparatory schools, Culver may be cited. An organized service has been working there since 1908. There are about four hundred and fifty students during the regular winter term. The medical staff consists of one physician and two nurses devoting full time. The average of dispensary calls is about twenty daily. Room visits are made as needed.

A seventeen-room infirmary is maintained. It is in charge of the academy physician, who asks outside consultation as required. Two hundred and fifty bed patients were treated during the last session. Frequent examination of all students with weekly lectures in general hygiene are required. General supervision and remedial gymnasium work are emphasized features. Dr. C. E. Reed is physician in charge.

Vassar

For about twenty years this school has made provision for student health. About one thousand students are cared for. Three women physicians, headed by Dr. Thelberg, are employed in the service, and they do some other instruction work in the college.

A good dispensary is maintained and detailed treatment is given. The thirty-room infirmary where bed patients pay $1.50 a day, is well equipped. Careful examinations are required on entrance and attendance on lectures is compulsory.

Wellesley

This school has a plan very much as that described for Vassar. Each of the thirteen hundred students pays a $5 annual fee. For this they receive dispensary privileges, supervision, and two weeks' care in a well-equipped infirmary. Dr. Katherine Raymond and two nurses are employed. Local physicians are called at request of the patient. The inspection of entrants is especially complete.

Smith

Until the last year the service was much as described for Vassar and Wellesley. Since that time the policy has been changed. Hours for advisory consultation are maintained and cases requiring treatment are referred to local physicians. The local physicians aid by making careful reports to the college physician, Dr. Florence Gilman, also director of the gymnasium, who has large authority in handling medical affairs at the school.

The infirmary is inadequate and inferior, although a suitable rest home is maintained in addition. The generous inspection of the school and the examination of entrants is well maintained. Lectures are provided for instruction in hygiene. There are about fifteen hundred students.

STATE UNIVERSITIES

California

As typical of the progressive element in western institutions the university of California has probably developed the best service. It has been organized since 1906. Dr. G. F. Reinhardt, professor of hygiene in the university, heads the staff and does the surgery in addition to the administrative work. Two men care for the daily clinics and house patients. One man for eye, ear, nose, and throat trouble is kept very busy during part of each day. Another man does epidemiologic work, and three women do the clinic and house work for the women students. One of the women does a large amount of orthopedic work and one of them has charge of anesthesia and the laboratories. Each of the eight physicians works with the service about four hours daily. Some of them are connected with the medical teaching staff of the university.

There are over five thousand students who pay $6 each annually for medical service. Operations and special nursing are not covered by this sum. The average daily dispensary patients number about one hundred. Calls are never made in the rooms, as bed patients are sent to the infirmary, which is exclusively for students and has forty beds. Five hundred and eighty bed patients were treated during the last year. Local physicians are called as consultants only.

"Applicants must appear before the university medical examiners and pass a satisfactory examination to the end that the health of the university community may be safeguarded." During two years seven were refused admittance to the university by the service. Of these three died later of tuberculosis and one is in an institution for the insane. Weekly two-hour lectures on hygiene are required of freshmen during the first term.

In a report Dr. Reinhardt points out that through the service the students receive valuable education from experience with economical and efficient organized medical aid; that similar statistics and observations can be made in no other way; and that such service instils democracy. The published reports of this service with reference to the diseases of young adults are elaborate and instructive.

Michigan

Out of general demand from the campus the organization of a service was undertaken in October, 1913. It was organized to undertake both preventive work and instruction, and the care of students when ill.

Administrative officers and deans serve with the staff as directors of the service. Dr. H. H. Cummings heads a staff of four full-time physicians, including Dr. Elsie Pratt, whose duty is with the women. A pharmacist dispenses drugs without added expense to the students.

A building on the campus is equipped for examinations and office treatments. These have averaged about sixty daily throughout the college year. The university hospital provides excellent consultation and care at small expense to bed patients able to pay.

Over five thousand students paid a compulsory fee of $2 each. For sick call at the room the patient pays

to the service fund $1 for day and $2 for night call. Summer students pay a general fee of 50 cents.

Next year the college year fee is to be $4. This will enable the service to send any student into hospital care for sixty days' limit without added expense to the patient. The contemplated examination of entrants with early and vigorous isolation of infectious cases should do much for the protection of the student group. Compulsory lectures on hygiene for the freshmen would further assist. It is planned to enrol members of the different house groups as health service representatives. These students will be instructed so that they may be of value in preserving the good health of their several houses.

The health of students at Michigan is generally good; in the last few years, however, there has been an apparent epidemic of acute pharyngitis.

There has been no expressed opposition to the service. Student sentiment is eminently satisfactory. Students have been surprised that in the past they did without such a service, where now in need they come for advice and treatment.

Iowa State

Since 1886, a service has been at Ames. Dr. C. G. Tilden is the only staff physician.

Twenty-eight hundred students pay an annual fee of $4 each. Daily calls average one hundred. Calls at rooms cost extra. Lectures and physical examinations are given in connection with gymnasium work only.

The infirmary has thirty beds and cared for 370 patients last year. Infirmary patients pay $3 weekly for three weeks and $7 thereafter. Local physicians treat infirmary patients at the discretion of the college physician.

Wisconsin

Since 1910 an unusually good service has been operated at Madison. Without special fees from the students the university has taken hold of many problems concerning student health and general medical instruction. Broad economy rather than medical philanthropy is given as a policy in their service.

The staff has six full-time physicians intimately related to the medical faculty. The duties of these men embrace teaching, research, and attention to the health of the individual student.

An ample infirmary has not been developed, although two hundred and fifty bed patients were provided for in a general hospital. This was done at nominal cost to those able to pay. In the dispensary, detailed treatment was given to about one hundred and twenty students daily during the last school year. Calls at sickrooms have averaged about ten daily.

The medical examination of entrants is considered important, but lectures on hygiene are not required. The service supervises sanitation throughout the university as for example, instruction is given to janitors and other university employees.

As emphasized features, Dr. J. S. Evans may be quoted. "There is close relationship between this department and the administrative officers in an attempt to correct errors in our educational practices. The compulsory observation of each student given special privileges because of medical defects. The attempt to prove that the prevention and treatment of disease must go hand in hand in the development of public medicine."

As in other institutions, the local physicians have had trouble in adjusting themselves to the advances of this service. The situation is fast coming to be recognized, however, as the natural course of medicine in its relation to public welfare.

Texas

The University of Texas has had a service since 1910. Twenty-two hundred students pay a fee of $5 a year for this service. A woman physician during two hours daily cares for girls. Dr. Joe Gilbert, in charge of the service, cares for male students in the same way. The number of office patients averages fifteen to forty daily, detailed treatment being given. Calls at the rooms are made without charge for the first three visits.

Hospital arrangement is made with a local hospital for the care of students. The hospital receives $15 per week for each patient and gives in return ordinary care. The patient receives five hospital visits from the university physician without cost. When another physician is called the patient pays for his services, but the hospital care is provided the same. Bed patients average from five to ten daily. Provision is made for compulsory examination of freshmen on entrance and for lectures on hygiene, which must be attended.

Washington

During 1910 a sick benefit service was organized as a result of student agitation. It applies only to those students who come from out of the city and are not under the jurisdiction of some home in Seattle. A fee of $1 is collected by the university for the privileges given. The director of the service is a physician, who cooperates with the faculty committee on hygiene and sanitation. Sick students are first seen by the director without expense for the first visit. If continued medical attention is required, a local physician is called by choice of the patient or in rotation by the director.

Patients requiring hospital attention are sent to local hospital without additional expense to the patient. All entrants must have a medical examination. They also are required to take a course in hygiene consisting of one hour per week throughout the year. It is pointed out that this service does not interfere with the family physician, and that it reduces the student's expense because of the free first call which is all that is required in the majority of cases. It is expected that the fee will be increased soon to $1.50.

Missouri

A service was organized in Columbia, Mo., in 1910. Dr. Moss devotes his entire time to the work and the University Hospital is available. Twenty-five beds were used last year without additional expense to four hundred bed patients. Local physicians may care for hospital cases at the choice of the patient. Office calls average about twenty daily.

There are about three thousand five hundred students and each pays a fee to the service. The examination of entrants and lectures on hygiene are required.

CONCLUSIONS

For the institution which recognizes an obligation in the care of student health, and wishes to handle it certain things are advisable.

1. A definite organization should be able to use and direct effort in any department of university work, to the purpose of the service. The work should be headed by an interested physician who devotes, preferably,

whole time. He should be given large authority in carrying out the policies of the service and additional staff as needed. Having a supervisory board of the faculty is helpful.

2. The needed equipment depends on that available in other departments of the university. If the policy of detailed treatment is chosen, which seems the most practical, a definite headquarters must be provided with ample room sufficiently convenient that students may call without loss of time. Good office facilities and a laboratory are needed for efficient work.

Provision for bed patients should especially include care for contagious cases. This should be so provided that there need be no financial hesitation about ordering any suspicious case into isolation.

3. The service expense should be borne largely by the student through general tax. Money for this purpose is economically spent by the institution. The use of staff members on the teaching faculty provides for part of their salaries.

4. The work of instruction, inspection, and supervision is to be emphasized. The effect of instruction in matters of hygiene and sanitation has an unlimited scope as directed to future teachers and leaders. If this provision for the care of health impresses students favorably, there should be demand for similar service outside the university. The relation of such services to the medical profession should be early established.

The health of a school will depend in part on the health of those admitted. It is certain that schools should be protected from a number of applicants each year, and that a good medical examination would avoid some failures in a college career.

THE THERAPEUTIC EFFECT OF IODIN *

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Iodin and the iodids, either in inorganic form or as organic compounds, have been successfully used for many years in the therapy of various disease conditions, without definite knowledge as to their mode of action in the body.

The beneficial results obtained, more especially the effects in causing absorption of necrotic material, such as is found in gummata, have been variously ascribed to the influence on the general metabolism of the body; to the lowering of blood-pressure; to changes in the viscosity of the blood; to a lymphocytosis; to increased lymphatic activity and to the oxidizing properties of free iodin. As is so frequently the case, the very multiplicity of these views indicates that probably none is satisfactory; indeed, practically all the theories advanced have been seriously questioned.

Much work has been done on the absorption, distribution and excretion of iodin. (Winternitz, Wells, Loeb, McLean.) The older view that iodin combines with the proteins of the body has been disproved by McLean, who found that in experimental animals the lipoid fraction of the tissue contained 32 per cent. and the water soluble fraction 67 per cent. of the iodin absorbed. The extracted protein contained no iodin.

In a series of papers recently published we have demonstrated that the lipoids containing unsaturated carbon atoms are antitryptic when in colloidal solution; that tubercle bacilli and tuberculous caseous material contain such lipoids, the resistance of caseous material to solution and absorption being due to the presence of these compounds, the inhibitory effect of which is overcome when the caseous material is extracted with lipoid solvents, or when the unsaturated bonds are oxidized or satisfied with iodin.

We have furthermore shown that the antitryptic activity of the serum is due to similar lipoids which can be extracted with lipoid solvents (chloroform, ether, etc.). We have observed that iodin and the iodids when incubated with serum, markedly lowered the antiferment property. Serum from which the antiferment has been extracted becomes toxic because of autolysis (serotoxin), a similar process (absorption of the antiferment by agar, kaolin, bacteria, etc.) being the basis of the toxicity of the so-called anaphylatoxin.

These studies suggested the possibility that the action of iodin in the body may be due to a combination with the fatty acid, the saturation of the unsaturated valences causing a corresponding neutralization of the antiferment activity of these lipoids. This lowering of the antiferment index of the blood and tissues in general would permit the removal of necrotic tissue by autolysis. In view of the work of McLean showing that a large amount of the iodin is actually combined with lipoids after absorption, such an explanation might seem rational.

Drs. Fordyce, McMurty and Sharpe of the Vanderbilt Dermatological Clinic, Columbia University, have kindly placed at our disposal a series of cases in which we were able to determine the antiferment index of the blood at various times, both before and during the course of iodid therapy. In these thirteen cases, eleven of which were specific, we have observed a progressive lowering of the antiferment index of the serum, the effect being greatest when the limit of tolerance was reached—from 100 to 150 drops per day of a saturated solution of potassium iodid. The number of cases studied is not large, but the results were sufficiently uniform to show that the iodids so administered to human beings cause a considerable reduction in the antiferment activity of the blood, the net result being of course an increase in the proteolytic activity of the blood and tissues.

In those patients in whom toxic symptoms were noted (gastric disturbance, rash, etc.) the antiferment index, which had been lowered, was increased to the original strength, this being similar to the effect observed following many other intoxications—anaphylaxis, serotoxin, burns, protein poisoning; such a toxic rise being most probably due to a mobilization of lipoids from cells, will, of course, defeat the object for which the iodids are given.

TUBERCULOSIS

The impression is quite general among clinicians that iodids are harmful in tuberculosis, as they promote the spread of the infection by causing a softening of the tubercles and also interfere with connective tissue formation. Whether or not caseous tissues take up iodin from the circulation other than in a

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* Complete protocols and references to the literature will appear in a more detailed report in *The Archives of Internal Medicine.*

purely physical manner, is an open question. (Loeb, Wells, Lewis). Boudreau believes that iodin is a specific agent in the treatment of tuberculosis and reports favorable results.

In our work on the antiferments contained in tubercle bacilli and in tuberculous caseous material, we found that the enzyme-inhibiting action was due to the unsaturated fatty acid radicals of the lipoids. At first we believed that this action was due entirely to the soaps of the unsaturated fatty acids, but subsequent work showed that a large portion of the enzyme-inhibiting agents could be removed by extracting with chloroform. The substances contained in the chloroform extracts are not active as anti-enzymes when suspended in salt solution, as they are insoluble; but the sodium soaps prepared from these acids are active, and we found that their activity was in proportion to the degree of their unsaturation, but that this action was lost if the acids were first saturated with iodin. These experiments were repeated with the chloroform extracts of tuberculous caseous material and with unextracted caseous material, with the result that the soaps prepared from the chloroform extracts became inactive, and the caseous matter which, previous to treatment with iodin, had not been acted on by trypsin, was now readily attacked. The loss of anti-enzyme action cannot be attributed to any activating influence on trypsin, as iodin inhibits the action of this ferment.

Thus we have definite evidence of the action of the iodids on tuberculous tissue, and the explanation of the well known clinical observation that iodids cause tubercle bacilli to appear in the sputum of patients with pulmonary tuberculosis, though they were previously absent. When iodids are taken into the tissues a portion of the iodin is liberated and combines with the unsaturated carbon atoms of the fatty acids. As soon as this occurs in necrotic tissue to a degree sufficient to lower or remove the antiferment action, autolysis ensues, as in most instances ferments are present. That the inorganic iodids diffuse readily throughout caseous matter and are thus in a position to furnish the iodin, has been shown by Loeb and Michaud, and Wells and Hedenberg.

SYPHILIS

Clinical experience teaches us that in the tertiary stage of syphilis iodin is almost a specific in bringing about the amelioration of symptoms, and the disappearance of lesions, and yet little is known concerning the means by which these results are obtained.

Authorities on this subject are unanimous in the belief that iodids are not curative in the sense that they prevent the return of the lesions; this can be accomplished only when the iodids are combined with some other form of treatment. Tomasczewski found that the administration of iodin does not prevent the development of experimental syphilis in monkeys and rabbits; neither has it a curative action; but iodized animals recovered quickly when given mercury. That iodin does penetrate into syphilitic tissues has been shown by O. Loeb.

As experimental work and clinical observations have demonstrated that the iodids do not destroy the infecting organism, we must assume that the results obtained are due to the power the iodids possess of causing resolution of the lesions present. That this actually occurs will be attested to by every clinician of experience.

Owing to its scarcity we have not been able to examine material from gummata, and so we are unable to state positively that the anti-enzymes present are similar to those found in tuberculous caseous matter, but it is probable that the same agents are active here as in those anemic infarcts in which autolysis does not occur. If this assumption is correct, it is not difficult to explain why large gummata rapidly disappear when the patient is brought under the influence of iodids. It is due to the fact that the unsaturated fatty acid radicals which inhibit autolysis, have become saturated with iodin. As soon as this occurs, the ferments which are present, or which may be brought in, become active, autolysis takes place, and the necrotic tissue is absorbed. Here, also, the local action of the ferments is made less difficult by the reduction of the anti-enzyme in the circulating blood. It must be borne in mind that the iodids are not as effective in the earlier stages of syphilis when necrosis of tissue is not so evident.

If the above interpretation of the action of iodin is correct, it gives the clinician a rational idea of what he is accomplishing when he gives iodids to a patient in the tertiary stage of syphilis. According to this view, iodin neutralizes the action of the agents which prevent resolution and absorption of the diseased or necrotic tissue, and at the same time lays bare to the action of the real germicidal agent the infecting organism which previously had been protected by the necrotic tissue. With the exposure of the infecting organism, such agents as mercury and salvarsan would be much more effective.

CONTRIBUTION TO THE STUDY OF THE VALUE OF QUININIZATION IN THE ERADICATION OF MALARIA

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My excuse for adding this paper to the already rather voluminous literature on malaria prevention is that it embodies the result of a unique experience, and one which, I feel, should be recorded.

My principal duty in Daressalam was to institute a campaign against malaria, and although my training has been almost entirely along the lines of attack on the anophelines (in Panama), I was under the impression, formed from the perusal of Claus Schilling's article in Ross' "Prevention of Malaria," that the method of Koch, introduced in Daressalam by Ollwig[1] in 1901-1903, has been successful in so far as it has at least considerably reduced the incidence of malaria.

The results of my study of the conditions in Daressalam have been embodied in a report to the imperial governor of German East Africa, but I was impelled to the writing of this paper by the appearance of Henson's article,[2] and the wish to show, by citing the results achieved by such an attempt, the difficulties in the way of reducing malaria to any reasonable extent by systematic quininization in a com-

1. Ollwig: Die Bekämpfung der Malaria, Ztschr. f. Hyg. u. Infektionskrankh., 1903, xliii.
2. Henson, Graham E.: Man, the Principal Etiologic Factor in the Perpetuation of Malaria, with Special Reference to the Endemicity of the Disease in the Temperate Zone, THE JOURNAL A. M. A., May 2, 1914, p. 1374.

munity of considerable size. Let me say here that I do not wish to be understood to the effect that the attempt should never be made, that this method of prophylaxis stands condemned as useless. It may have a cerain degree of usefulness, but it is, much to my regret, a very insignificant degree when applied to a permanent community of considerable size in a country where anophelines capable of transmitting malaria abound, and where, in addition, changes of population due to immigration serve to introduce more or less continuously gamete carriers.

Daressalam is a town of about 23,000 inhabitants, of whom approximately 1,000 are whites and Goanese, and the remainder mostly Swaheli of Negro-Arabic descent. The town is divided into practically two settlements: the white quarter, situated along the beach, and the native quarter, farther inland. To the east of the town is the Indian Ocean, to the south the harbor and Geresani Creek, a rivulet divided from the harbor by a dam and forming behind it a swamp about $^{8}/_{10}$ of a square mile in area. This swamp and the creek itself are prolific anopheline producers. The distance from the dam to the center of the town is about a mile.

In the very center of the native quarter are two large pools, one permanent, and the other containing water only during the rainy seasons, of which there are two annually. Both of these breed anophelines. One of these, to which reference will be made later, known as Karavanserai Pond, has recently been cleaned out and the banks trimmed, and it is being periodically treated with a phenol preparation. While thus treated it has remained free from mosquito life.

Then there was also, until very recently, a swamp, heavily infested with anophelines, about a mile long and 50 yards wide, in a valley on the very edge of the native town, with a branch toward a small European suburb. This swamp drains into the Msimbasi rivulet, the banks of which are also breeding grounds for anophelines during the dry seasons, and which winds its way in close proximity to the native town.

Across the narrow inlet to the harbor, and less than a mile away from the town, are a number of mosquito-breeding pools and swamps.

The town has no public water supply, nor any sewerage system.

There are about 200 wells, most of these badly covered and containing anopheles larvae. The European houses mostly have pits, into which the sewage is water borne. For this service water tanks are installed under the roofs, few of which are free from mosquito larvae. In addition, anopheles larvae were found in roof gutters.

In the rainy season pools of water, which stand for weeks in many instances, form in numberless places on streets, lots and in yards, and very soon mosquitoes breed in these.

Ollwig arrived in Daressalam apparently firmly believing in the soundness of Koch's theory[3] that malaria can be eradicated by attacking the parasite within the human host. He also believed, as he states in his articles in the *Zeitschrift für Hygiene und Infectionskrankheiten* and in private letters to Koch, since published, that a campaign against the mosquito in Daressalam was certain to be fruitless. He lays particular stress on the opinion of an unnamed "expert engineer" that the most prolific anopheles-producing area, the swamp at the mouth of Geresani Creek, is undrainable. Let me here remark, by the way, that a survey showed this swamp to be drainable, and that when I left Daressalam the creek and swamp were practically free from mosquito larvae, as a result of clearing the creek and ditching, which was done only on a small experimental scale because of the absence of funds.

Ollwig therefore instituted his campaign on the lines of an attack on the parasite in the human host, and this campaign is, so far as my information goes, still continued; at least, it was being continued when I left Daressalam in March of the present year.

The campaign is carried out on the following lines: Blood specimens are taken from all natives employed or living within the European quarter and in the immediately adjacent area. "Thick" smears are made, stained with Giemsa stain and examined. All those whose blood shows the presence of malaria parasites are given 1 gm. of quinin daily for six days and 1 gm. twice a week for ten weeks. The quinin is given in solution and is taken in the presence of a trained nurse.

The accompanying tables show the results accomplished. They have been compiled by Dr. Manteufel of the Daressalam Research Institute. The figures are from carefully kept records, and are not subject to the usual errors of such compilations.

TABLE 1.—MALARIA AND HEMOGLOBINURIC FEVER—MORBIDITY AND MORTALITY AMONG EUROPEANS IN DARESSALAM

		Morbidity		Mortality	
Fiscal Year	Population	Cases	Percentage of Population	Cases	Percentage of Population
1903-04.....	377	168	44.5	0	0
1904-05.....	350	141	37.1	3	0.8
1905-06.....	657	355	54.0	4	0.6
1906-07.....	851	287	33.7	6	0.7
1907-08.....	827	268	29.8	6	0.7
1908-09.....	743	342	48.0	3	0.4
1909-10.....	750	506	67.5	5	0.7
1910-11.....	930	460	49.5	10	1.1
1911-12.....	1,024	667	65.2	11	1.1

TABLE 2.—INCIDENCE OF MALARIA INFECTION AMONG THE NATIVE POPULATION OF DARESSALAM BASED ON BLOOD EXAMINATION

	Adults		Children	
Fiscal Year	Examined	Infected Per cent.	Examined	Infected Per cent.
1904-05.....	8,000	10	None examined	
1905-06.....	No examinations made			
1906-07.....	14,752	7.5	3,234	18.9
1907-08.....	15,263	15	4,352	27.0
1908-09.....	28,267	14	3,747	33.4
1909-10.....	17,889	21	5,563	29.4
1910-11.....	15,960	18	4,136	27.7
1911-12.....	24,917	17	4,800	25.1
1912-13.....	19,782	20	3,308	32.0

Manteufel in his paper,[4] from which the tables are abstracted, says:

> When the above-mentioned expedition [Ollwig's] commenced its work in Daressalam, the Europeans were already in the habit of using mosquito bars on beds. However, the use of mosquito gauze for the protection of dwellings, and the taking of quinin prophylactically, as well as measures against mosquito pest, were only gradually introduced during the following years. In considering the influence of Koch's method upon the malarial morbidity of the European population, the above-mentioned factors must naturally be taken into consideration.

Now, the objection may be raised that the quininization was extended to only a portion of the population. The answer to this is that it represents a comparatively steady part of the population: house servants and

3. Koch, R.: Die Bekämpfung der Malaria, Ztschr. f. Hyg. u. Infektionskrankh., 1903, xliii.

4. Manteufel: 12 Jahre Malariabekämpfung, etc., Ztschr. f. Hyg. u. Infektionskrankh., 1913, lxxvi.

artisans, who are less subject to migration than the traders, porters and agricultural laborers, who make up the remainder of the population of Daressalam. It follows that the results obtained among these people would be rather better than the average.

It is recognized, of course, that by leaving the bulk of the population untreated, the chances for infecting the treated portion remain very good.

An experiment was therefore instituted by me to determine the effect of treating all the inmates of a closed community.

For this experiment the negro pupils of the Daressalam Trade School, who live in dormitories and do not come into contact with the outside population, were selected. The school is in the European quarter. Five days after the school was opened, April 5, 1913, blood specimens from all the pupils were examined. One hundred and thirty-one of these were natives of Daressalam; of these sixty-six, or 46.8 per cent., had malaria parasites. One hundred and twelve came from the country; of these fifty-two, or 45.5 per cent., were infected.

All those found to be infected were put on the routine treatment with quinin, and this treatment was continued until Oct. 29, 1914. November 11, the blood of all was examined; 26.4 per cent. were infected with malaria.

The school was closed for the Christmas holidays. Jan. 15, 1914, again five days after the school was opened, 254 pupils were present. Of the 152 who spent the holidays in Daressalam, fifty-one, or 37.4 per cent., were infected with malaria. Of the 102 who spent the vacation in the country, thirty-seven, or 36.2 per cent., were infected with malaria.

A parallel inquiry was carried out. Oct. 3, 1913, 100 adults and fifty children living in the vicinity of the mosquito-breeding pond mentioned before, Karavanserai Pond, had their blood examined by the same person who examined the blood of the schoolchildren, and who had no idea whatsoever of the purpose or nature of the experiment. None of those examined had ever taken quinin prophylactically, and the subjects were taken at random from the huts in the vicinity. Of the adults thirty-two harbored the parasites of malaria (32 per cent.); of the children twenty-six were infected (52 per cent.).

The pond was cleared of vegetation, the banks trimmed, and the water near the banks treated every ten days with a phenol preparation. The work of clearing was completed in November, 1913. Feb. 26, 1914, again 100 adults and 50 children were taken at random from the population residing in the vicinity of the pond. None of these had had quinin. The blood smears were examined by the person who made the first examination. Of the adults fourteen, or 14 per cent., were infected with malaria; of the children sixteen, or 32 per cent., a decrease of 18 and 20 per cent., respectively.

Among those treated with quinin according to the Koch-Ollwig method, the decrease in a community under ideal control was 13.9 per cent.

It is to be noted that the climatic conditions remained practically constant during the period covered by the inquiry. It is also to be noted that the control of the one breeding area did not by any means eliminate anophelines from the vincinity from which the subjects were drawn. The number of anophelines was reduced, however, to quite a marked extent in such areas.

I want to draw attention to one other factor in connection with the experience in Daressalam with the Koch-Ollwig method.

In the past two years the energetic medical adviser to the governor, Generaloberarzt Dr. Meixner, has had quite a number of measures introduced, all of which tended to decrease the number of anophelines in Daressalam. Unfortunately, conditions are such that Dr. Meixner and his associates are not in a position to carry into effect all the measures against malaria that they rightly consider necessary. The power of the able and zealous officers is greatly curtailed and hampered in East Africa, and their efforts are rendered almost sterile by passive and active resistance, lack of funds and "red tape" in volumes beyond the comprehension, I fear, of the average American.

A COLLOIDAL COMPOUND OF STRYCHNIN AND ITS PHARMACOLOGY *

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The migration of drugs in the body, and consequently their action, is largely dependent on their diffusibility through colloidal membranes and their interaction with colloidal bodies. Since I wish to present the action of a colloidal compound of strychnin, it may be of interest at first to give a brief summary of the properties of colloids.[1]

In 1861, Graham found that not all substances acted in the same way when their solutions were separated from water by a parchment membrane. Crystalline substances like sodium chlorid, potassium iodid, sugar and the like passed through, while substances like gums, starches and proteins did not. Those that passed through he called crystalloids, those that did not, colloids.

This difference in diffusibility is perhaps the most striking distinction between the two classes of substances; it is not, however, the only one nor is it an absolute one, since all these bodies diffuse to some extent, at least on longer standing.

THE NATURE OF THE COLLOIDAL SOLUTION

Various facts indicate that colloidal solutions are not true solutions but more of the nature of suspensions of fine minute particles of one form of matter in another. The solid particles are separated so that they do not come in contact with each other and are known as the disperse phase. The liquid molecules touch each other and are for this reason called the continuous phase of the colloid. All colloids are made up of these two phases—disperse and continuous. A difference in the size of the particles causes a difference in the refraction of light and consequently a difference in the appearance or color of the solutions. In the crystalline state it is well known that copper sulphate is blue, but if this be finely powdered it is white. Similarly the red oxid of mercury becomes yellow when more finely divided. For the same reason a colloidal solution of gold may be pink, red or purple in water and blue in organic solvents. The ultramicroscope also shows that many colloidal solutions contain fine particles.

* From the Laboratory of Pharmacology, Northwestern University Medical School.

1. This summary is taken mainly from an Introduction to the Chemistry of Plant Products by Hass and Hill, Longmans, Green & Co., London and New York, 1913, p. 273.

The fact that colloids contain these particles suggested a reason for their not diffusing through a membrane, and to explain this the mechanical or filtration theory states that colloids do not pass through simply because the particles are too large. There are some known facts, however, such as the passage through one kind of membrane of a colloid which will not dialyse through another of different composition, which prevent the acceptance of this theory as the only process involved in dialysis. For this reason some chemists advance a chemical theory which holds that the passage of a substance through a membrane is due to the latter playing an active part in the process. Kahlenberg asserts that the substance which passes through a membrane is soluble in the membrane. This theory might be also used to explain the selective affinity of tissues for drugs and the ability of tissues to break up such weak colloidal compounds as strychnin with kaolin.

The nature of the solvent is also important. A substance may be crystalline in one medium and colloidal in another. Gallic acid in water acts like a colloid, while in glacial acetic acid it is crystalline. While gold may be pink, red or purple in water, and blue in organic solvents, it is ruby red in glass. Sodium chlorid is white, but blue rock salt is considered a colloidal solution of sodium in crystalline sodium chlorid. Sodium chlorid also may be obtained in colloidal form in benzene, while in water it is decidedly crystalline. Soap is colloidal in water but not in alcohol.

GEL FORMATION

Colloidal solutions readily undergo change, and unless conditions exist either for their preservation or renewal they soon deteriorate. The emulsions of the pharmacist "crack" and precipitate. The precipitation form of a colloid is called gel, the dissolved form, sol. Since both dissolved and precipitated forms of colloid may exist for many solvents, the terms "hydrosol," "hydrogel," "alcosol" and "alcogel," etc., are used to indicate the kind of solvent—water, alcohol, etc. If the precipitate or gel be one that cannot go into solution again, the action is said to be irreversible. If, however, the change is only temporary and through change of temperature or the like it again goes into solution, it is said to be reversible.

TYPES OF IRREVERSIBLE AND REVERSIBLE CHANGES OF COLLOIDS

1. Spontaneous precipitation: Some colloids like silicic acid or pharmaceutical emulsions, after keeping precipitate spontaneously.

2. Gel formation due to altered concentration: An ether solution of collodion on evaporation will form a gel. Fruit juices and agar gel on evaporation due to the presence of a colloidal carbohydrate-pectin. Gelatin, a protein substance prepared from tendon or bone, gelatinizes on evaporation of its solution. All of these changes are reversible with heat.

3. Coagulation by heat. This change is well known in urinary analysis in the heat test for albumin; also well known in the cooking of eggs. The action is irreversible.

4. Coagulation by enzymes. The well-known coagulation of the emulsion milk by rennet and by various plant enzymes is an irreversible reaction. The suspensoid colloids resemble closely the enzyme, catalase, in many of their reactions.

5. Precipitation by electrolytes: The colloids of the blood or urine may be salted out by the addition of varying amounts of different salts; usually a large amount is required. Other colloids, especially suspensoids, may be precipitated by mere traces of an electrolyte. Thus colloidal iron is precipitated by extremely minute amounts while emulsoids, like milk or blood, require large amounts.

6. Precipitation by other colloids of opposite sign: Colloids are known to carry electric charges, and it is this that enables them to remain in solution. When neutral they are precipitated. The proteins of the blood are amphoteric, that is, they carry charges of either sign. Colloidal kaolin is negatively charged and colloidal ferric hydrate positively. The last two will mutually precipitate each other. One of the best methods of removing the proteins of the blood for the determination of the blood-sugar is to mix the blood-serum or laked blood with colloidal iron, in slight excess. The blood thus treated takes on the character of the added colloid but still remains in solution. On the addition of an electrolyte bearing an opposite charge such as sodium sulphate or magnesium sulphate, the positive charge on the iron is neutralized and in precipitation it carries down the protein with it. For a similar reason ferric salts are used in the purification of sewage water. The negatively charged particles of the sewage are precipitated by the positively charged ferric hydroxid hydrosol. It has also been suggested that the neutralization of toxin with antitoxin, and the phenomenon of bacterial agglutination, may be regarded as the mutual precipitation of two colloids.

THE PROTECTIVE POWER OF COLLOIDS

Many organic substances such as gelatin and pectin bodies, when added to inorganic colloidal solutions, protect these from precipitation by electrolytes. As an explanation it has been suggested that the suspensoid becomes covered with a layer of the gelatin or pectin body and in a measure insulated with a coating of the added body whose character it takes on. Suspensoids so protected or insulated may be evaporated to dryness and again redissolved. This property of increased stability is valuable in the preparation of some of the colloidal solutions of silver and mercury used in medicine.

In like manner colloids protect sensory nerves from the action of acids, bitters, corrosives, etc. Sugar dissolved in mucilage tastes less sweet than in water, and acids in colloidal mixtures are less appreciated, as is observed in many fruits. The raspberry contains more acid and less sugar than the currant, but in the former the acid taste is concealed by the presence of large quantities of colloids so that the raspberry is regarded as a sweet fruit and the currant as an acid one. For the same reason ice cream does not taste so cold as frozen water (Cushny). One of the most common measures in the treatment of corrosive poisoning is the administration of colloids in the form of milk or eggs, because of this protective property. Charcoal, Fuller's earth or Lloyd's reagent would also lessen the rapidity of absorption.

CLASSIFICATION OF COLLOIDS

Two classes are recognized—suspensoids and emulsoids. This classification is based largely on the properties and composition of organic and inorganic colloidal solutions. Organic colloids are sticky and

viscous. Inorganic colloids are never viscous. This difference is accounted for by assuming that the disperse phase of the suspensoids consist of solid particles in a liquid medium, whereas the disperse phase of the viscous colloids consists of liquid particles suspended in a more dilute solution or liquid medium.

Emulsoids.—Serum may be regarded as a type. The ultramicroscope reveals no distinct particles. Whether this is due to the particles being too small or not having a refractive index sufficiently different from that of the liquid in which they are suspended is not known.

The assumption that emulsoids are made up of one liquid suspended in another would to a certain extent explain their viscosity. The lack of a sharply defined surface of separation would account for their lack of marked electrical properties and their indifference to electrolytes as compared with suspensoids. A relatively great concentration of an electrolyte is required for their precipitation, while a trace precipitates a suspensoid. If a suspensoid be added to serum the latter takes on the property of the suspensoid and is then readily precipitated or dragged down with the suspensoid on the addition of a trace of an electrolyte.

Suspensoids.—These are perhaps of less importance in medicine and biology than emulsoids, but because our kaolin strychnin compound comes under this head a brief description of their properties is given. The method of their preparation sustains the assumption that they are electrically charged, and the ultramicroscope reveals the presence of solid particles. By analogy some of these properties are thought to apply to the emulsoids.

They may be prepared: (1) by the disintegration of metals by an electric current under water; (2) by the reduction of metallic solutions with reducing agents; (3) by the passing of hydrogen sulphid through arsenious acid, whereby the arsenic trisulphid instead of being precipitated remains in colloidal solution.

It is natural to suppose that in the method of preparation by an electric spark the particles should be electrically charged and that these particles, being charged with the same kind of electricity, repel each other and so keep in solution — or suspension. If electrolytes are added, the charge may be neutralized and the suspensoid precipitated. This explains why suspensoid colloids cannot be kept for any length of time unless carefully freed from electrolytes by dialysis. This property of neutralization of colloids by electrolytes and the neutralization of a positive by a negative colloid may explain the phenomenon of absorption which some colloids exhibit and which concerns us directly in the kaolin strychnin compound.

ABSORPTION

When a solid body is introduced into a solution the dissolved substance tends to accumulate at the point of contact between the solution and the solid. To all such cases of purely surface absorption the term "adsorption" is applied. This property is exhibited by wood charcoal to a large degree, and charcoal has long been used in chemical analysis to clarify solutions and to absorb gases. It has also been used in medicine to absorb gases from the stomach. Other colloids such as fuller's earth and china clay have been similarly used, and it is from fuller's earth that Lloyd's reagent is mainly prepared.

COLLOIDAL STRYCHNIN

The preparation known as Lloyd's reagent was prepared by J. U. Lloyd[2] from fuller's earth. It has the property of completely removing alkaloids from neutral and acid solutions. The reagent is essentially hydrous aluminum silicate. According to Waldbott[3] it has the approximate composition given in Table 1.

TABLE 1.—APPROXIMATE COMPOSITION OF LLOYD'S REAGENT

	Per Cent.
Water	17.41
Silicon dioxid	55.30
Aluminum oxid	9.82
Ferric oxid	14.80
Calcium monoxid	1.58
Carbon dioxid	undetermined

He also found that heating to 130 C. (266 F.) does not destroy its activity, but red heat renders it inert. Other colloidal materials, among which are colloidal arsenious sulphid and colloidal silicic acid, plainly precipitate quinin sulphate.

The use of this reagent for the separation of alkaloids has been investigated somewhat in detail by Gordin and Kaplan.[4] Because of the rather firm combination which the substance forms with alkaloids and the fact that it has been advised as a means of concealing the unpleasant taste of quinin, it was thought advisable to investigate its pharmacologic action. For this purpose Professor Gordin kindly furnished me with a colloidal combination of strychnin with Lloyd's reagent. The strength of the sample was 4 gm. of strychnin sulphate precipitated with 60 gm. of the reagent. The final product when dried weighed 65 gm.

Since the product contains about 6.15 per cent. strychnin sulphate, one is surprised to find that it is rather tasteless, and only after holding it in the mouth for some time does the bitter taste develop. It is this concealment of the bitter taste and its use for this purpose in pharmacy that makes the investigation advisable. As already reported by Dr. Gordin,[4] the colloidal precipitate acts very much like strychnin diluted with an inert substance. In fact, it has the typical colloidal property of delaying and lessening the effect of the strychnin.

In determining this I used frogs of about the same size and compared the action of pure strychnin with the colloidal form. The time of the onset of tetanus was noted in each case, and the amount of pure strychnin corresponding to the colloidal form estimated. This method has a limited application, but it shows beautifully the lessening of the tetanic dose and marked changes in the rate of absorption. The tables are self explanatory. The amount of colloidal strychnin is given in terms of strychnin sulphate, which is 6.15 per cent. of the amount of kaolin precipitate used. Equal volumes of fluid were used in each injection. The injections were made into the anterior lymph sac.

In comparing these two tables we find that where 1/50 mg. of the pure strychnin produced tetanus in about an hour, the same amount in a colloidal form was without effect and that about four times the amount was required to produce tetanus in this time. The weakening effect is much more marked in the stronger colloidal suspensions. One twenty-fifth mg.

2. Lloyd, J. U.: Chem. Abst., 1913, vii, 683.
3. Waldbott: Jour. Am. Chem. Soc., 1913, xxxv, 837.
4. Gordin and Kaplan: Am. Jour. Pharm., 1914, lxxxvi, 461; Jour. Am. Pharm. Assn., 1914, iii, 627.

will produce tetanus in about the same time as 3.6 mg. or about ninety times as much of the colloidal compound. It is quite apparent, therefore, that this method will not give us the relative strengths of the preparations. It does show, however, the retarding action of the colloid. This difference in the apparent strength of colloids on dilution is perhaps not given the weight it deserves in the biologic standardization of drugs.

TABLE 2.—EXPERIMENTS WITH PURE STRYCHNIN SULPHATE

Weight of Frog, Gm.	Amount of Strychnin, Mg.	Time of Onset of Tetanus, Minutes
27	1/5	3.5
29	1/5	2.0
25	1/10	5.0
21	1/10	4.5
30	1/10	5.5
24	1/25	35.0
24	1/25	35.0
25	1/25	23
27	1/25	40
22	1/25	23
22	1/25	18
23	1/25	39
22	1/50	62
22	1/50	73
21	1/50	75

TABLE 3.—COLLOIDAL STRYCHNIN

Weight of Frog, Gm.	Strychnin, Mg.	Time of Onset of Tetanus
23	1/25	No Tetanus
18	1/25	No Tetanus
17	1/25	No Tetanus
18	1/25	No Tetanus
16	1/13	76
16	1/13	46
23	1/13	75
21	1/13	13
20	1/13	66
18	1/13	51
19	1/13	43
19	1/13	45
24	2.4	37
24	2.4	28
23 aver. weight of 10	2.6	32
20 aver. weight of 4	4.8	31

The difference between crystalline and colloidal strychnin is undoubtedly due to a retarded absorption. This can be lessened to such an extent that the rate of excretion may be nearly equal the rate of absorption, when no action would be expected. Other colloids have the same effect and it is well known that strychnin in mucilage is not nearly so quickly absorbed through the frog's skin as strychnin in water. O. H. Brown[5] has reported a colloidal albumin combination of strychnin whose properties are similar to the compound which I have described.

All of the animals that received the larger doses of the colloidal preparation died. Those that received the pure strychnin in smaller doses, but which produced tetanus in the same time as the larger colloidal doses, recovered. The colloidal combination, therefore, apparently acts mainly by delaying absorption, and if given in larger amounts is only a little less toxic than the pure alkaloid.

When administered by mouth the action is also delayed, but if the amount given contains a fatal dose of strychnin, tetanus is somewhat delayed and it requires a little more to cause death. The main difference is in delayed action due to delayed absorption. Cats and dogs react similarly to frogs. The exact diminution in the toxicity we have not measured, but it is not great.

CONCLUSIONS

The action of strychnin when combined with Lloyd's reagent is retarded. In this respect the reagent modifies the action in a manner similar to other colloids. The combination is broken up in the body and the typical strychnin action exerted. The toxicity of the alkaloid is somewhat lessened owing to delayed absorption, but the main effect is a retarded action.

5. Brown, O. H.: Jour. Biol. Chem., 1906, ii, 149.

THE INTRASPINAL TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM WITH SALVARSANIZED SERUM OF STANDARD STRENGTH

REPORT OF CASES *

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The purpose of this communication is to describe a method of preparing human serum containing a known quantity of salvarsan and suitable for employment intraspinally in the treatment of syphilis of the central nervous system, and to report a series of fifteen cases treated with such a preparation.

Recently Marinesco and Minea[1] reported having treated twenty patients with serum prepared in a somewhat similar manner, but in which neosalvarsan was used instead of salvarsan. Their work was started about the same time (November, 1913) as that herein reported. Reference will be made later to this article, and to a subsequent one by the same authors.

In support of the rationale of intraspinal treatment there are reasons which readily commend it to those who are familiar with the anatomic and physiologic conditions existing in the central nervous system. While necessarily a delicate procedure, and one that requires the greatest care and thoroughness of technic, the method may be considered free from hazard when the essential precautions are carefully observed. There can be no doubt in the minds of those who have followed the developments of the past few years that, in so-called parasyphilis or metasyphilis, we are dealing with either active syphilitic disease of the central nervous system, or the results of such a process. It is in the former class of cases only that we may hope to achieve success with any form of therapy. The findings of Noguchi and Moore,[2] and subsequently of others, have removed all doubt as to the true etiology and pathology of paresis and tabes.[3] The indications for a rational therapy have been definitely established. We are confronted with the task of dislodging the *Treponema pallidum* from the poorly vascularized regions of the brain and spinal cord. That the perineuronal and perivascular lymph-spaces are in direct communication with, and a part of, the subarachnoid space has been demonstrated. Dandy and Blackfan[4] in their experiments in producing artificial hydrocephalus, have shown that when phenolsulphonephthalein is injected into the subarachnoid space, only

* Read before the American Association of Immunologists at Atlantic City, June 22, 1914.

* On account of lack of space this article is abbreviated in THE JOURNAL by omission of some case reports. The complete article appears in the author's reprints.

1. Marinesco and Minea: Bull. de l'Acad. de méd., 1914, lxviii, 259.
2. Noguchi and Moore: Jour. Exper. Med., 1913, xvii, 232-238; Moore, J.. W: Jour. Nerv. and Ment. Dis., 1913, xl, 172-179.
3. Noguchi, H.: Jour. Cutan. Dis., 1913, xxi, 543-549.
4. Dandy, Walter E., and Blackfan, Kenneth D.: An Experimental and Clinical Study of Internal Hydrocephalus, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2216.

faint traces can be demonstrated in the thoracic and right lymphatic ducts even after an interval of two hours, whereas it appears in the blood in three minutes, and at the end of two hours from 35 per cent. to 60 per cent. has been excreted by the kidneys. This experiment indicates that the subarachnoid space and its accessory perineuronal and perivascular lymph trabeculae are not a part of the general lymphatic system of the body. It also shows that there is a free passage of spinal fluid into the blood-stream. The reverse is not true, however, for substances introduced intravenously and intra-arterially do not enter the cerebrospinal fluid. Tilney and Woolsey,[5] in a series of extremely important and interesting studies in vital staining, introduced solutions of trypan blue subcutaneously, intra-arterially, intravenously, and intraspinally. By the first two methods they found that the skin and thoracic and abdominal viscera stained readily; but the central nervous system, on the other hand, remained entirely free from stain. Given intravenously, the stain reached the dura mater and the pia, but did not penetrate into the nerve-tissue. Even after the use of *twice the quantity of the solution and a concentration three times as great* as that used in the first two methods, there was but little evidence that the dye had traveled into the substance of the brain and cord. After an intraspinal injection, however, *using only one-tenth the strength of dye solution* used in the first two experiments, the meninges were not only found to be deeply stained, but the dye had penetrated deeply into the nerve-tissue and through the walls of the veins and capillaries, even reaching the endothelium of the latter. Microscopic examinations of sections showed that the stain had traveled along the trabeculae of the pia.

These results suggest strongly the necessity for other than intravenous administration of salvarsan if we are to reach the diseased areas in syphilis of the central nervous system, other than gummas and endarteritis. The cells of the choroid plexus are secretory in character. To them is due, in a large part, the elaboration of the spinal fluid, although Dandy and Blackfan have shown that the ventricles of the brain also play a part in the secretion of this fluid. It is well known that only a few substances and these of the most simple character, such as urea and sodium chlorid, normally pass from the blood into the subarachnoid space. The question of the presence of salvarsan in the cerebrospinal fluid after an intravenous treatment is one on which investigators differ. While the majority have obtained entirely negative results, a few claim to have detected small quantities of arsenic. There can be no doubt, however, that the impermeability of the fluid secretory apparatus accounts for the comparative inefficiency of other than subarachnoid administration of curative agents in diseases affecting the meninges and adjacent nerve-tissue. Flexner,[6] in his work in epidemic cerebrospinal meningitis, Lamar,[7] in pneumococcic meningitis, Wollstein,[8] in influenzal meningitis, and more recently Flexner and Amoss,[9] in poliomyelitis, have demonstrated beyond a doubt that diseases of this type cannot be controlled except by subarachnoid therapy. Syphilitic meningo-encephalitis and meningomyelitis differ in no way from other diseases of these parts in so far as the method of treatment to be employed is concerned. While potassium iodid, mercury, and salvarsan intravenously, are of unquestioned benefit in many cases, not infrequently resulting in rapid amelioration of symptoms, they are rarely sufficient to eradicate the biologic evidences of active disease as shown by the findings in the spinal fluid. Until this is accomplished, and permanently so, our therapy is inadequate and an additional means of attack seems therefore very desirable.

We are indebted to Swift and Ellis[10] for the original work in intraspinal treatment of syphilis of the nervous system. Their method was to use the blood removed from a patient one hour after the intravenous administration of salvarsan. At this time the serum possesses the maximum spirocheticidal action and the minimum irritative qualities. The results obtained by Swift and Ellis in the treatment of tabes and cerebrospinal syphilis were extremely good. In this country a number of men, including Fordyce, Ayre, Tilney, Hough, McCaskey, Fry, Myerson, Byrnes, Cotton, Esper, Draper, Cutting and Mack, and Ogilvie, have employed the method in treating paresis as well as tabes and cerebrospinal syphilis. With the exception of Myerson, who discredits the method in both theory and practice, the consentient opinion of these men is that the results so far obtained, in all but the hopelessly irreparable cases, are very encouraging.

Efforts made to introduce solutions of neosalvarsan intraspinally have not met with very encouraging results. Swift and Ellis[11] found that solutions containing from 0.1 to 1.5 mg. produced marked lymphocytosis in the spinal fluid of monkeys, indicating that the drug was intensely irritating to the meninges. In this work they used 40 per cent. serum as a vehicle. Solutions containing 1.0 mg. of salvarsan produced a lymphocytosis of over 1,000 cells per cubic millimeter in every case, while in one monkey 3.2 mg. caused paralysis of the hind legs. Wechselmann[12] found that 0.1 mg. of salvarsan in solution of from 1:500 to 1:800 produced convulsions and subsequent death in dogs when given intracranially. Less concentrated solutions were better borne. He later[13] reported having treated two paretics and two cases of congenital syphilis intraspinally with doses of neosalvarsan ranging from 0.5 to 3.0 mg. without ill effects. Marinesco[14] reported severe reaction following the use of 5.0 mg. of the drug in a concentration of 1:800. Eight out of thirteen patients treated had vesical retention or incontinence. Three had paresis of the lower limbs and one had anesthesia below the site of puncture. Berger,[15] in a series of experiments on twenty-five dogs, found that a solution containing 1.0 mg. produced death when given intracranially. At necropsy even doses of 0.5 mg. had produced severe irritation at the site of the injection. This was evidenced by congestion and infiltration of the surrounding tissue, minute hemorrhages, etc. Only 0.1 mg. in a 1:10,000 solution could be given without irritation. Beriel[16]

5. Tilney, F., and Woolsey, W.: A personal communication; to be published. Also Tilney, Frederick: Long Island Med. Jour., 1914, viii, 128.
6. Flexner, A.: Jour. Exper. Med., 1907, ix, 168.
7. Lamar, R. M.: Jour. Exper. Med., 1912, xvi, 581-606.
8. Wollstein, A.: Jour. Exper. Med., 1911, xiv, 73.
9. Flexner and Amoss: Jour. Exper. Med., April 1, 1914, p. 411.
10. Swift and Ellis: New York Med. Jour., July 13, 1912.
11. Swift and Ellis: Jour. Exper. Med., 1913, xviii, No. 4.
12. Wechselmann, W.: Die Behandlung der Syphilis mit Dioxydiamidoarsenobenzol (Ehrlich-Hata 606), Berlin, 1911, ii, 11.
13. Wechselmann, W.: Deutsche med. Wchnschr., 1912, xxxviii, 1446.
14. Marinesco, G.: Ztschr. f. diätet. u. physik. Therap., 1913, xvii, 194.
15. Berger: München. med. Wchnschr., 1914, lxi, 563.
16. Beriel: Bull. et mém. d' hôp. de Paris, 1913, Series 3, xxxix, 970.

reports the death of three out of four paretics treated intracranially and intraspinally. Two of these received 2.0 mg. of neosalvarsan. One suffered no ill effects after 1.0 mg. and 2.0 mg. and appeared to be somewhat improved. Two of those who died were treated intracranially. Ravaut[17] reports no ill effects in nine patients receiving 63 treatments. He used from 4.0 to 12.0 mg. of neosalvarsan in isotonic sodium chlorid solution. His clinical and serologic results are vaguely summarized. Marie and Levaditi,[18] treated 14 patients and of this number five died within a month. Two others showed evidence of severe local irritation, vesical retention, paresis of the lower limbs, etc. Out of the total number treated there was improvement in one case. Jeanselme, Verne and Block,[19] treated five cases of tabes, four of paresis, and one of latent syphilitic meningitis. They record no unfavorable sequelae other than temporary increase of tabetic pains, rise of temperature and general weakness. They used from 0.25 to 5.0 mg. doses. Clinically their results are inconclusive. They found a reduction of the cell and globulin content of the spinal fluid in most cases, and the Wassermann reaction influenced in four out of five tabetics. Lorenz[20] reports fifteen cases treated intraspinally with neosalvarsan dissolved in 0.4 per cent. sodium chlorid solution. In ten cases there was a reduction of cells, in eight, decreased globulin, and in four the Wassermann was changed to negative. He used from 0.03 to 0.06 mg. of the drug at each treatment and believes this method less dangerous than the Swift-Ellis. In the work of Marinesco and Minea,[1] referred to above, the authors used neosalvarsan in human serum. The serum was first inactivated by heating at 56 C. (100.8 F.) for thirty minutes. From 6.0 to 12.0 mg. of the drug was then added and the combination heated at 37.5 C. (99.5 F.) for forty-five minutes. Six out of twenty cases of tabes and latent syphilitic meningitis showed improvement in one way or another. There was no improvement in the remaining fourteen cases. There was no parallelism between the changes in the spinal fluid findings and the clinical results obtained. Transitory retention of urine was noted as the chief unfavorable sequela. Later the same authors[21] report having treated twenty-one cases of paresis intracranially with serum prepared in a similar manner. There were signs of improvement in seven cases and death in one. They used as much as 1.0 mg. of the drug in only 5 c.c. of the patient's serum. In this series they record epileptiform attacks, rhythmical spasms of the legs and a transitory hemiplegia on the side opposite the point of injection, following treatment.

From a study of these results one can but conclude that, while apparently well borne in a small percentage of cases, neosalvarsan administered subdurally in any vehicle is attended with far too much hazard to warrant its use, even if the clinical results obtained were more encouraging. It is well known that both salvarsan and neosalvarsan attain their maximum spirocheticidal power only when in combination with blood-serum, and, as Swift and Ellis[22] have shown, this action is enhanced by heating at a temperature of 56 C. for thirty minutes. The heating of neosalvarsan at this temperature is impracticable because of its instability, and therefore its use is prohibited in any work that attempts to salvarsanize a serum in vitro. Recently Stühmer[23] has shown that salvarsanized serum, unheated, exerts a curative action for twenty-four hours in mice infected with trypanosomes, and a protective action for forty-eight hours, whereas, if the serum is heated at 56 C. for thirty minutes the curative effect is prolonged for three days and the protective influence for four days. He believes, with Swift and Ellis, that the heating of a salvarsanized serum in this manner is absolutely essential to promote the biologic and chemical changes necessary to attain the highest possible curative efficiency.

Convinced of the value of the Swift-Ellis method, from observation of results in some 200 treatments, but believing that, as in the employment of all other anti-syphilitic medication, the maximum efficiency would more readily be attained if we were able to increase or decrease the strength of our curative agent, I undertook, in November, 1913, to prepare in vitro a serum of known salvarsan content that could be safely administered intraspinally.

TECHNIC

The technic employed is as follows:

About 50 c.c. of blood are drawn into a centrifuge bottle by means of a MacRae vacuum needle. The bottle is immediately placed in a large centrifuge and the fibrin and cellular elements are thrown down. It requires a speed of about 3,000 revolutions for fifteen minutes to produce a perfectly clear serum. It is rarely necessary to centrifuge more than once if the blood is freshly drawn, but the process should be repeated if the serum is not absolutely free from cells and fibrin. To 15 c.c. of serum is then added the amount of salvarsan to be given. This is done by mixing the salvarsan as for an intravenous treatment, using freshly distilled and boiled water, and bringing the total quantity up so that each 40 c.c. of the solution will contain 1.0 dg. (0.1 gm.) of the drug. Each cubic centimeter of this solution will then contain 2.5 mg. of salvarsan. With a 1 c.c. pipet, graduated into tenths, the desired amount can be readily measured from 0.25 mg. upwards. *In adding the sodium hydroxid it is of the greatest importance to use only the exact amount required to very faintly alkalinize the solution.* When this has once been determined by testing with litmus paper the sodium hydroxid should always be added quickly, and not drop by drop. *It is also very important that the temperature of the salvarsan and serum be the same when the two are mixed.* The serum is then gently agitated to thoroughly mix the two and is placed in a thermostat at 37 C. for forty-five minutes. From this it is placed in a thermostat at 56 C. for thirty minutes. It is now ready to be given intraspinally and it should be used as soon after preparation as possible. *Under no circumstances should a serum be used that is more than three hours old.*

The lumbar puncture is done with the patient lying on his side, the back flush with the edge of the bed, and the thighs flexed on the abdomen. Spinal fluid to the amount of 15 c.c. is permitted to flow through the cannula of the puncture needle, and the serum is then introduced by gravity from the barrel of a glass syringe. I have not found that the intraspinal pressure is of sufficient importance in the average case to require its measurement before and after treatment. In the absence of any evidence of extreme pressure the practice of simply removing the same quantity of fluid as of serum to be introduced has proved to be

17. Ravaut, P.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, Series 3, xxxvi, 752, 761.
18. Marie and Levaditi: Bull. et mém. Soc. méd. de hôp. de Paris, 1913, Series 3, xxxvi, 675.
19. Jeanselme, Verne and Block: Bull. et mém. Soc. méd. d. hôp de Paris, 1913, Series 3, xxxvi, 792.
20. Lorenz, W. F.: Wisconsin Med. Jour., 1913-14, xii, 171, 177.
21. Marinesco and Minea: Compt. rend. Soc. de Biol., 1914, lxxvi, No. 4, 672, 674.
22. Swift and Ellis: Jour. Exper. Med., 1913, xviii, No. 4.
23. Stühmer: München. med. Wchnschr., 1914, lxi, 745.

entirely satisfactory. After a treatment the patient is kept in the recumbent position, without pillows, and with the foot of the bed elevated, for four or five hours. The bed is then lowered, but he is not permitted to get up for from thirty-six to forty-eight hours, depending on the nature of the reaction following.

In the cases herein reported a total of seventy-five treatments were given. The reactions observed have been chiefly in the form of root pains in the lower extremities. These followed in about 50 per cent. of the treatments, varied considerably in intensity, and were invariably more marked in tabetics in whom lightning pains had been a prominent symptom. In three tabetics with vesical insufficiency, this symptom was temporarily increased with the pain. In one paretic who had not previously had bladder trouble, there was retention of urine necessitating catheterization for several days following a dose of 3.5 mg. Another paretic developed vesical and rectal incontinence, with numbness and weakness in the lower extremities, within six hours after a treatment with the same amount. In this case the patient got out of bed a few minutes after the treatment was given and walked about the room. The severe reaction that followed was attributed, in part, at least, to the probability that the erect posture had prevented the serum from properly diffusing within the spinal canal, and had caused an irritation of the roots in the dependent part of the dural sac. With the exception of this patient, who, although slowly improving, has not yet completely recovered, the reactions have all been temporary. In several tabetics and one taboparetic there was accentuation of the ataxic symptoms coming on several days after a treatment. In every instance, however, these symptoms slowly disappeared, and the patient's condition was eventually improved over what it had been prior to the treatment. When pains have followed a treatment they have usually responded to the ordinary anodynes given for the relief of tabetic crises. Occasionally it has been necessary to give morphin hypodermically. In only one case was there any elevation of temperature following a treatment, and this disappeared in twenty-four hours. In 50 per cent. of the treatments there was no reaction of any kind beyond a slight temporary weakness.

As will be seen by the table in Case 4, as high as 4.0 mg. of salvarsan was given at a treatment. In this instance there followed a temporary retention of urine and severe root pain. Although numerous other instances show a dosage of 3.0 and 3.5 mg. I would particularly emphasize the importance of keeping the dose within 1.0 mg. The treatments given with relatively small amounts of the drug were well borne, and the clinical improvement was more marked than when larger doses were used. This was very noticeable in Case 1, in which the patient showed the greatest improvement while on small doses. It would seem that nothing is to be gained by using larger quantities of the drug, and, in addition, the possibility of injury to the nerve-tissue is reduced to the minimum when the dose is kept within the above mentioned limit. *For repeated use, from 0.25 mg. to 0.5 mg. is the safest and most effectual dose to employ.* The giving of heroic doses does not contribute to the efficacy of the treatment, but, on the contrary, not only minimizes its value as a therapeutic measure, but may entail grave danger to the patient.

The following reports[24] must be considered as purely preliminary, since sufficient time has not yet elapsed for proper observation of the cases. In order to present them as concisely as possible, only brief abstracts of the examinations and analyses made before and after treatment will be given.

REPORT OF CASES

CASE 1.—Tabes. Man, aged 41, married, salesman, was seen Nov. 15, 1913.

Symptoms.—Patient has difficulty in walking; marked ataxia; general weakness; periodic root pains; loss of position sense in feet and legs; paresthesia; numbness in feet and legs; hypersensitiveness to hot and cold water. Duration, three to four years, steadily worse.

History.—Patient had syphilis ten years ago. Primary and secondary manifestations. Orthodox treatment for three months. From February, 1912, to October, 1912, he received fourteen intravenous treatments of salvarsan and neosalvarsan, and reacted badly to each; absolutely no improvement.

Examination.—Patient is poorly nourished, weight 116 pounds. Gait and station very poor. Uses heavy cane; walks with difficulty. Easily fatigued. Knee-jerks and ankle-jerks absent, right and left. Pupils: 2 mm., round; fixed to light; very sluggish to accommodation. Position sense in feet and legs, nil. Hypesthesia in feet, calves, and post-thighs.

TABLE 1.—RESULT OF TESTS AND TREATMENT IN PATIENT 1*

Analyses	Cerebrospinal Fluid	Blood Date	Blood Reaction
11/15/13	Wass. ++ in 1.0, 0.8, 0.6, 0.4 c.c.; — in 0.2 c.c. Cells 46 per cu. mm. Glob. ++, 0.2 c.c.	9/ 4/13	+=

Date of Treatment	Intraspinous mg. Salvar.	Reaction Root Pain	Intravenous Salvarsan	HG and KI
11/21/13	0.25	—		
11/29/13	0.25	—		
12/13/13	0.5	—		
1/ 8/14	0.75	—	None	No administration
1/27/14	0.75	—		
2/19/14	1.0	Moderate		
3/10/14	1.5	Moderate		
4/16/14	3.0	Severe		
5/28/14	3.5	Very severe		

Date of Analyses	Cerebrospinal Fluid	Blood Date	Blood Reaction
5/29/14	Wass. ++ in 1.0, 0.8; — in 0.6, 0.4, 0.2 c.c. Cells None. Glob. None	5/29/13	++tng
		6/ 9/13	—

* In these tables ++ equals complete inhibition; —, negative.

Examination.—June 2, 1914: Objective: Areas of hypesthesia in feet and legs are very markedly diminished. Patient's position sense is only faintly impaired, at times appears to be perfectly normal. Nutrition greatly improved. Musculature firm. He has gained 8 pounds in weight. Gait and station very markedly improved. Subjective: Patient states that he feels better than at any time since the onset of his trouble. He is able to walk from six to eight miles without the aid of a cane, and without undue fatigue. He has been absolutely free from pain and girdle sensations for more than three months.[25]

CASE 4.—Postman, aged 23, single, seen Feb. 10, 1914.

Symptoms.—Patient shows marked weakness of lower extremities; ataxia, very marked; vesical insufficiency; almost constant dribbling of urine; pains in arms and legs, not severe in character but practically constant. Duration three and one-half years, steadily worse.

History.—Patient had genital ulcer four years ago. No secondaries of any kind. Six months later developed bladder

24. For lack of space only four case reports are given here. The full series will be found in the author's reprints.

25. He has had nine intraspinal treatments; no salvarsan by vein; no mercury or potassium iodid. The improvement was most noticeable when he was receiving small doses, that is, under 1.0 mg.

weakness and difficulty in walking. All symptoms were pronounced within a year. In November, 1911, was given two intravenous treatments of salvarsan.

Examination.—Patient is very poorly nourished; musculature soft and flabby. Weight 110 pounds. He is unable to walk more than twenty feet without assistance. Even this requires a great effort. Position sense in lower extremities is nil. Marked incoordination both manual and pedal. Knee-jerks and ankle-jerks absent. Pupils: 3 mm. round, very sluggish to light; to accommodation normal.

TABLE 4.—RESULT OF TESTS AND TREATMENTS IN CASE 4

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
3/ 2/14	Wass. ++ in 1.0, 0.8, 0.6 c.c. — below. Cells 98 per cu. mm. Glob. ++, 0.2 c.c. (Marked excess.)	3/ 2/14	—

Date of Treatment	Intraspinous mg. Salvar.	Reaction Root Pain	Intravenous Salvarsan, gm.	HG and KI
3/ 2/14	0.5	—	..	
3/17/14	1.0	Slight	..	
4/ 4/14	1.25	Slight	..	
4/17/14	..	.....	0.5	
4/18/14	1.5	Severe	..	No administration
5/ 6/14	..	.....	0.5	
5/ 7/14	2.0	Severe	..	
5/22/14	4.0	Severe†	..	
6/ 6/14	2.0	Slight	..	

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
6/ 9/14	Wass. Negative in all dilutions. Cells None. Glob. ±, 0.2 c.c. (Very faint excess.)	6/ 9/14	—

† On this date there was temporary retention of urine.

Examination.—June 1, 1914: Objective: There is definite improvement in the pupillary light reflex. Other reflexes unchanged. Coordination improved in both upper and lower extremities. His station with eyes open is very good; with eyes closed poor. His gait, although markedly ataxic, has improved so that he walks very well with the aid of a cane. He has gained 8 pounds. Muscles of his lower extremities are much more firm. Subjective: He is able to walk the length of ten city blocks with but little fatigue. He can get on and off street cars without difficulty. He has no trouble with his bladder other than occasional difficulty in retaining urine if bladder is not emptied promptly. He has had no tabetic pains for the past six weeks. He states that there is a definite improvement in his position sense in his feet and legs.

Case 9.—Paresis. Man, aged 46, married, merchant, seen Nov. 3, 1913.

Symptoms.—Patient is wildly maniacal. He has been in this condition practically constantly for the past nine months. For the past four months it has been impossible to keep a stitch of clothes on him, and he has lived in a room devoid of all furniture except a bed. He fights his attendants and raves and curses at the top of his voice. He is tractable only in the presence of his family physician.

History.—No history of syphilis obtainable. Seven years ago patient suddenly developed diplopia which disappeared under mixed treatment. He suddenly became violent nine months ago and was immediately committed. During this time he has had a number of intravenous treatments of salvarsan given at irregular intervals whenever his condition would permit.

Examination.—Knee-jerks and ankle-jerks diminished; R > L. Pupils about 2 mm., irregular margins, practically fixed to light. He is unusually well-nourished. It is difficult to make a thorough examination on account of his excited condition. He is oriented as to place and person but very vaguely so as to time. He talks in a rambling, disconnected manner.

Examination.—May 1, 1914: There is definite improvement in patient's condition. During the greater part of the time he is quiet and tractable. For the past month he has dressed himself each day and walks about the grounds of the sanatorium with an attendant. Otherwise there is no change in his mentality.[27]

TABLE 9.—RESULT OF TESTS AND TREATMENTS IN CASE 9

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
11/ 8/13	Wass. ++ in 1.0, 0.8, 0.6 0.4 and 0.2 c.c. Cells 75 per cu. mm. Glob. ++ 0.2 c.c. (Marked excess.)	11/ 8/13	++

Date of Treatment*	Intraspinous Serum† Percentage	Reaction	Intravenous Salvarsan, gm.	HG and KI
11/ 8/13	50	—		
11/15/13	..	..		
11/19/13	50	—	0.5	
11/29/13	75	—	..	Impossible to give either mercury or potass. iodid
12/ 2/13	..	..	0.5	
12/ 6/13	75	—		
12/11/13	..	..	0.5	
12/15/13	80	—		

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
12/15/13	Wass. ++ in 1.0, 0.8, 0.6 0.4 c.c. — in 0.2 c.c. Cells 14 per cu. mm. Glob. ++, 0.2 c.c. (Moderate excess.)	12/15/13	++

Date of Treatment‡	Intraspinal mg. Salvar.	Reaction	Intravenous Salvarsan	HG and KI
2/20/14	0.75	—		Sajodin gr. 90 t.i.d. in food
3/11/14	1.0	—		
4/ 2/14	1.5	—	None	
4/10/14	2.0	—		

Analysis	Cerebrospinal Fluid	Blood
4/14/14	Wass. — in all dilutions Cells None Glob. ±, 0.2 c.c. (Very faint excess.)	Not made

* In this course of treatment the Swift-Ellis method was used. There was no change in his mental or physical condition. Patient was so resistive to treatment that it was necessary to precede each intraspinal injection with morphin and hyoscin hypodermically.

† Exogenous (Swift and Ellis).

‡ Serum of standard strength was used in this series of treatments.

Case 11.—Paresis. Man, aged 44, married, broker, seen Feb. 12, 1914.

Symptoms.—Patient has thick, slurring speech; defective memory; depression, epileptoid attacks; feeling of numbness in backs of hands, wrists, arms and forearms; irritability; childishness; numerous signs of slow mental deterioration. Duration, about eighteen months. First symptom was an epileptoid attack while in his office. Since then he has had numerous similar attacks; loss of consciousness, clonic and tonic twitchings, generalized.

History.—Patient had syphilis eighteen years ago. Genital chancre, no secondaries. Local treatment only. Within the past year he has had one intravenous treatment of neosalvarsan with potassium iodid and mercury by inunction irregularly. He has been unable to attend to business for some months. During the past week he had several epileptoid seizures within twenty-four hours and was dazed and disoriented the entire day. He has failed rapidly in every way during the past three months.

Examination.—Patient has typical paretic speech defect. It is often difficult to understand what he says. He shows a marked confusion of details covering the past six to eight months. There is a coarse tremor of the hands, tongue and at times the facial muscles. He is dull and stupid. Knee-jerks: right, normal; left, diminished. Ankle-jerks diminished. Deep reflexes of arms, normal. Pupils: round, 2 mm. fixed to both light and accommodation. His station and gait are normal.

27. It is interesting to observe that there was no change whatsoever in the patient's condition while he was on the Swift-Ellis treatment, that there was an interval of over two months between this course of treatment and the four treatments with serum of standard strength, and that the serologic findings were rapidly influenced by the latter treatment.

TABLE 11.—RESULT OF TESTS AND TREATMENTS IN CASE 11

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
2/12/14	Wass. ++ in 1.0, 0.8, 0.6, 0.4 and 0.2 c.c. Cells 56 per cu. mm. Glob. ++, 0.2 c.c. (Marked excess.)	2/12/14	++

Date of Treatment	Intraspinous mg. Salvar.	Reaction	Intravenous Salvarsan, gm.	HG and KI
2/20/14	..	..	0.5	
3/ 4/14	..	..	0.5	
3/14/14	0.5	—		Mercury inunctions.
4/ 3/14	..	..	0.5	Potass. iodid up to gr. 60 t.i.d.
4/ 4/14	1.0	—		
4/18/14	2.0	—	0.5	
5/ 4/14	..	..		
5/ 5/14	3.0	—		Mercury inunctions.
5/18/14	3.5	Headache two hours		Potass. iodid up to gr. 60
5/27/14	..	..	0.5	

Analyses Date	Cerebrospinal Fluid	Blood Date	Blood Reaction
5/18/14	Wass. ++ in 1.0, 0.8 c.c. ± in 0.6 and 0.4 c.c. — 0.2 c.c. Cells 3 per cu. mm. Glob. Normal content.	6/12/14	—

Examination.—May 27, 1914: Objective and subjective: Patient is entirely free from all his original symptoms. He has not had an epileptoid attack since his first treatment. His speech is normal. He has no tremors. Mentally he is bright and alert. He has gained in weight and his general health is better than at any time in the past two years. The numbness of which he complained in his hands and arms has entirely disappeared. The deep reflexes are unchanged. The pupils are still fixed to both light and accommodation.

SUMMARY

From a study of these cases it will be seen that the laboratory evidences of active syphilis, as shown by the Wassermann reaction in the blood, and the cell-count, globulin content and Wassermann reaction in the spinal fluid, were reduced in every instance to a greater or less degree, and that, in the majority, there was a concomitant clinical improvement. As to the permanency of these changes one must necessarily hold a conservative view, since it is yet far too early to draw any definite conclusions. It seems reasonable to believe, however, that those cases that have responded favorably, both clinically and biologically, can be controlled with proper supervision and sufficient treatment.

The work is only begun. It is of interest at this time chiefly in that it demonstrates the practicability of giving salvarsan in small doses intraspinally without jeopardy to the patient. The importance of keeping the dosage within 1 mg. cannot be too strongly emphasized. The relatively small amounts of arsenic found in serum salvarsanized in vivo (according to the method of Swift and Ellis) suggests that its spirocheticidal properties are not wholly dependent on the salvarsan content, but probably also on the formation of some substances in the blood-serum, with the nature of which we are as yet unfamiliar. It was, therefore, in an effort to preserve, so far as possible, the principles of the Swift-Ellis method, that the plan of first incubating the serum at body temperature for forty-five minutes was evolved.

105 West Seventy-Second Street.

Its Value.—There is nothing of which men are so fond, and withal so careless, as life.—Bruyere.

THE PREVENTION OF COMMUNICABLE DISEASES IN GENERAL HOSPITALS *

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I cannot hope to present to you any scheme which will entirely prevent the introduction of transmissible diseases into hospitals. The object of this paper is to point out briefly how such incidence can be very materially diminished.

We must first take a more intelligent interest in this matter and provide the means for accomplishing better results. Very few American hospitals, either general or contagious, keep an accurate record of diseases contracted within the hospital and record them in their annual reports. At most, they make brief mention of any considerable outbreaks. This is an unfortunate state of affairs. How shall we make any progress until we face this problem honestly, publish our results, good and bad, and study the situation from the standpoint of facts, not theories? Such an endeavor will bear fruit and will be to the advantage of hospitals, for the incidence of infectious diseases to any considerable degree injures the local reputation of a hospital, diminishes its efficiency, and is a needless financial burden.

Before the direct consideration of the problem, I wish to emphasize a few principles which underlie the transmission of infectious disease and point out some errors which we have all been committing. We have been led to believe that the causative agent survives for a considerable period after leaving the human body and may be more or less widely distributed; that the entire room of an infectious patient and its contents—bed, bedding, etc.—are permeated by the organism causing the disease; and that such contagion may be wafted to neighboring rooms and buildings. Teachers and text-books have presented many examples of scarlet fever contracted from some article of clothing or toys used by a scarlet fever patient, years before. These are all fallacies, however, under which we have been laboring, and it is no wonder that efforts to control infectious disease have not yielded better results. The truth of the matter is that, fortunately for humanity, infective organisms, under ordinary conditions of drying, rapidly lose their virulence. Though we admit the claim of bacteriologists who tell us that they can resuscitate organisms after the lapse of considerable time, it is not proved that any one ever contracted disease from such sources. Indeed, there is much practical evidence against such a supposition, and to obtain results we must turn our attention to the most common ways in which infection actually does find its way into the individual living, for the purposes of this discussion, under hospital conditions.

Infectious diseases are kept alive in any community by exposure to frankly clinical cases, to missed cases which are unrecognized or unrecognizable, and to carriers. Infection is transmitted from these three sources to the well either by direct contact, or indirectly; that is, on commonly used articles, by insects, by water, milk, and perhaps other foodstuffs, especially the uncooked. Indirect infection occurs but rarely through an uninfected third person, and by clothing, etc. In all cases, the medium of indirect infection must have been freshly infected.

* Read before the Section on Hospitals at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

In hospital practice it is commonly believed that visitors introduce infection. This, I believe, is another fallacy, though I admit that they may do so on rare occasions; however, it is not of any practical importance. Many curses are heaped on the hospital laundry. This is also a mistake, for linen which has passed through washers as it is done in hospital washing is well sterilized. In practically all cases, the infection is introduced into the hospital on patients who are suffering from unrecognized infectious diseases, on patients who are carriers, or on patients who are admitted during the incubation period and not removed until damage has been done. It also happens, occasionally, that nurses and maids are on duty when in an infectious condition and may give rise to an outbreak.

I shall discuss the means of preventing such introduction of infection under two heads: construction and management. In treating of construction first, I do not mean to give it primary importance. It is, however, a factor of some consequence, especially as it bears on facilities for proper management. If, for instance, every person admitted to a hospital had a separate room during his entire residence, there would be less likelihood of a general, extensive outbreak of infectious disease; but such construction would not entirely prevent transmission. It would diminish personal contact but not indirect contact, a process which is of great importance in a general hospital where nurses and physicians, perhaps with fresh, virulent secretions on their hands, pass from one patient to another.

The construction which I would advocate for children's hospitals and for those portions of general hospitals given up to the care of children, comprises two departments: an isolation division and a convalescent division. Hospitals or portions of hospitals which treat adults only, do not require enough provision for the isolation of all new cases, though there should be sufficient isolation facilities for infectious or suspiciously infectious cases.

The isolation division should consist of rooms containing not more than three beds each. Fifty per cent. of the rooms should be for one patient only, and the capacity of the division should equal one-third, or better, one-half the total capacity of the hospital for children, but a much smaller proportion to the adult capacity of the hospital. The objection that single rooms are lonesome is not valid if they are situated on opposite sides of a common corridor and have sufficient glass area in the walls to permit of patients seeing and talking to those in other rooms. The isolation wards should be concentrated, but it is not necessary that they occupy a separate building. They should be centrally situated to favor transfers, but enough cut off from the rest of the hospital that they will not be a thoroughfare. An old open ward may be cut up into cubicles or stalls so that the beds will be 12 feet apart on centers, and should be provided with a sufficient number of lavatories to make hand washing convenient. The ventilation of the isolation wards does not need any special attention above that employed in other parts of the hospital. Of the ward equipment I shall speak a little later.

The isolation rooms described above are designed for the detention of all children under 14 years for a period of one week, if possible, and for the isolation of all real or suspicious infectious patients. All suspicious cases should be sent here, certain less highly transmissible diseases for as long a time as necessary, and all frankly clinical cases of contagious disease, provided there is no infectious disease hospital in the community to which to send them. Just here I cannot refrain from condemning the practice of sending home cases of contagious disease during a hospital outbreak, only to spread it in the community. There is a real objection to a detention period for surgical cases, particularly for those who need immediate surgical attention. As a matter of fact, surgical cases are less liable to bring infection into the hospital than medical cases. The situation may be met by providing each surgical ward with a sufficient number of detention rooms, and by removing to the isolation division all cases which are really infectious or suspiciously so.

The convalescent division is the main portion of the hospital and is to be kept uninfected by means of the filtration process already described. It should comprise wards or rooms of not more than twelve beds, and better, only six to eight in wards for children. The rooms for adults may be larger. At the end of a week's detention, all children may be transferred to the convalescent wards, as well as all other cases which have been proved non-infectious or free from infection.

It is the management, however, which is of paramount importance, and perhaps the admitting officer is the chief factor in this connection. From any point of view, this officer is of great value to the hospital, and especially with relation to the introduction of contagious diseases in new patients and the careful supervision of all cases in the hospital. In addition to the usual qualifications, he should have had practical experience with infectious diseases, particularly with regard to diagnosis and methods of control. If he has been rightly taught, he will have learned that over and above the positive clinical cases of all acute disease, there are a large number of doubtful cases and many which are unrecognizable. Chapin believes that the number of missed cases equals or may exceed the true clinical cases. The admitting officer must be familiar with the clinical syndrome of the various infections, their probable incubation periods, the ways in which the infecting agents leave the body, and special modes of transmission. He must always remember that every acute disease whose clinical picture is not evident on admission is a menace to the hospital until the diagnosis is made. He must remember that all sore throats, rashes, nasal or aural discharges, vaginal discharges, and coughs occurring either in new patients or in convalescents, require isolation for observation. He must be alert in detecting suspicious symptoms and he must be ultraconservative in placing with convalescents any suspicious case.

The admitting officer should have the supervision of the isolation wards and should be given complete authority to transfer patients into them from the convalescent wards, as well as from them into the convalescent wards. The management of the isolation wards is of the greatest importance. It must be carried out along the line of surgical cleanliness. Infection should be confined to the rooms occupied by patients, while the corridor, utility rooms, etc., are expected to be free from infection. In order to carry out these measures successfully, the isolation wards must be in charge of graduate nurses who have had experience with infectious diseases and appreciate the importance of proper aseptic nursing technic. It may be necessary to have two graduates on duty by day, if the number of patients is large, and it is important to have a graduate

on duty at night, for undoubtedly errors in technic are more liable to occur at that time than by day. Pupil nurses who have had their operating room training are best adapted for the work; they must also have had their training in infectious diseases, if the hospital affords such training, and must be carefully selected. The same nurses, observing strict cleanliness, may care for all the patients in the ward.

You may say that such extreme care is not necessary for the ordinary case, even if a child, as it enters the hospital. But that is just the point I wish to make; namely, that because of our limitations in accurate diagnosis, we may let infectious cases pass into the hospital; if, however, they are first placed in properly conducted isolation wards, you may be very certain that little or no damage has been done. The further value of this detention period is seen in the opportunity it affords for further observation, cultures, vaginal smears, and other clinical examination to determine diagnosis.

Some of the conditions which should be sent to the isolation wards are sore throats, vaginal discharges, rashes, coughs suspicious of whooping cough, unexplained temperatures, nasal discharges, congenital and acquired syphilis, gonorrhea in any form, open cases of tuberculosis, septic conditions, impetigo, ringworm, cerebrospinal meningitis, anterior poliomyelitis, typhus fever, and all suspicious cases. Add to these all frank forms of the common contagious diseases, such as diphtheria, scarlet fever, measles, rubella, chicken-pox, whooping cough, etc., if the hospital must continue to care for them. Remember, however, that measles and chicken-pox are the most difficult contagious diseases to care for by aseptic nursing.

In order to confine the infection to the rooms occupied by the patients, they must be kept within their individual units, and everything must be surgically clean when it leaves the room. Certain equipment is necessary in order to accomplish this. The rooms should be provided with lavatories having forearm or foot valves; this is very important. There should be sterilizers for dishes, utensils, and bed-pans and urinals. There must be proper receptacles for refuse of all kinds, particularly things soiled with infectious discharges, all of which should be burned. The isolation rooms may contain from one to three beds; in the latter case, the beds should be from 10 to 12 feet apart on centers, in order to afford ample working space about them. The three beds in the same room may be utilized for different conditions, barring measles and chicken-pox, by barriering each bed separately so that the nursing force will know that they are to be treated as if in separate rooms. The many other details can be readily worked out, if one always remembers that patients suffering from different conditions must be physically separated and that strict surgical asepsis must be applied when passing from one unit to another. The danger of aerial transmission is a negligible factor. Fumigation of rooms is useless and a waste of time and money. The use of soap and water is sufficient. The nurses may live in the same home with the other nurses and eat in the same dining room, provided they change their uniforms and wash hands and face before leaving the ward.

There are several points in the general management of a hospital which I should like to emphasize. Nurses should be taught more about the transmissibility of disease and should be thoroughly imbued with the importance of cleanliness, both in protecting patients and in protecting themselves from infection. This should be taught them during their probation period. There should be a sufficient number of nurses, supplemented by nurse maids, to care for patients, particularly in children's, typhoid, and surgical wards. Many of the so-called precautions observed in all hospitals are truly of limited value. It is very important that there should be enough lavatory basins so that it will always be convenient for nurses and physicians to wash their hands frequently in running water. Every ward should have sterilizers for utensils, bed-pans, urinals, and dishes. Everything soiled with infective discharges should be carefully sterilized or destroyed. Nurses should be vaccinated against typhoid fever and small-pox. Printed instructions should be posted in all employees' rooms, stating how infectious organisms enter the human body, and itemizing the common ways based on the well-known fact that a large proportion of infectious diseases must enter through the oral cavity, so that everything must be kept out except food and drink, and these introduced with clean hands. As far as possible, wards should be under charge of graduate nurses, especially those in which children are treated. Head nurses should be taught to be always on the lookout for suspicious symptoms and should be authorized to barrier any case until the admitting officer has seen it. All new employees should have nose and throat cultures taken and all employees should be under watchful supervision at all times. They should never be sent on duty with sore throats or rashes or any acute illness, unless it is known to be non-infectious. Common drinking cups and common towels should be prohibited everywhere. Thermometers should be wiped and immersed for one minute in some antiseptic fluid before being used on the next patient. Soiled linen from infectious cases should be removed from the wards directly to the washers. The ambulance should be provided with clean blankets and pillow slips between infectious cases and the hands of driver and attendant washed. After the more highly infectious diseases, soap and water should be used on those parts of the ambulance which may have been touched by the patient. All new patients should have nose and throat cultures taken, and vaginal smears should be made on all female children.

These recommendations are based on four years' experience at the Providence City Hospital, in which a very large variety of highly transmissible diseases is treated and the problem of preventing patients contracting secondary diseases is much the same as in a general hospital, except that the danger is greater. I must not take time to develop further details or quote statistics about our results, but will refer you to the several hospital reports and articles published on our work.

SUMMARY

1. Infectious diseases are introduced into the hospital chiefly by new patients.

2. Well-equipped and well-managed isolation wards should be provided for all suspicious and infectious cases and for all children under 14 years during a detention period.

3. There should be very careful admission of all patients, nurses, and help, and supervision of the same.

4. There should be sufficient equipment for all wards and better teaching of nurses and help about infectious diseases.

Providence City Hospital.

ABSTRACT OF DISCUSSION

Dr. H. M. Bracken, Minneapolis: There is a great deal for a public-health man to know relative to the handling of infectious diseases, and the question of the proper hospitalizing of these patients is an important one. It certainly would be an advantage if we could house some of these patients in a general hospital, yet I presume it would hardly be safe for me to suggest such action. If handled in a general hospital it would have to be with as careful isolation as in a hospital set aside especially for that purpose, and sometimes this would be difficult. Dr. Richardson states that success in handling these cases depends largely on the individuals in charge and this is most certainly the case. I was pleased to note his attitude as to air-borne infection, and disinfection. As a matter of fact the spread of disease is chiefly dependent on personal contact with the infected. When it comes to the spreading of disease the whole thing depends largely on the nurse and the physician in charge. A great many patients are released too early. The sooner we throw fumigation to the wind the better. The ordinary method of fumigation conveys an idea of safety that does not exist. The proper care of the patient is important, while the burning of the so-called fumigating candles is a waste of time and money. I wish we were doing more in the way of hospitalizing the infectious-disease cases. It is a lamentable fact that, except in the larger cities, there is no proper hospital accommodations for such patients. Our knowledge of infection in relation to surgery revolutionized the hospital in its relation to surgery. In surgical work an individual is sent to the hospital to prevent his own infection. In preventive medicine we should send one individual to the hospital to prevent the infection of many others.

Dr. C. H. Cook, Natick, Mass.: How many physicians have seen a case of small-pox? I had service for six months in a small-pox hospital. Forty years ago I was willing to take my chances in diagnosing the disease, even mild cases of varioloid, but I would not to-day. I know the difficulties. If physicians have no opportunity to see these cases how are they going to become good diagnosticians? They read about them and that is all. I do not wonder that there is case after case of mild varioloid not recognized by the physicians. I do not think the general practitioner is to blame. One has to send for experts. I would have been willing forty years ago to serve, but I wouldn't to-day, although I have seen those cases. With regard to the way small-pox is carried, I have no explanation, but I want to state this fact: in an insane hospital, the extreme ends of which were 700 feet apart, one case broke out in each end. The patients had been there for years. I know this, for I had the care of the patients after they were admitted to the small-pox hospital. How did the infection occur?

Dr. William H. Walsh, Philadelphia: With the principles of the technic of contagious nursing, as set forth by Dr. Richardson, I am heartily in accord, but I believe that he is going too far in the matter when he declares it possible to nurse contagious diseases in an ordinary ward of a general hospital without the risk of contagion. Statements of this kind are misleading, for while it might be possible to carry out the rigid technic necessary for such work in Providence, R. I., it does not follow that the same work can be successfully done in other parts of the country, under different conditions. We all admire Dr. Richardson's work, but we realize that his hospital is a small one, and that the technic which can be successfully employed in a small institution is much more difficult to maintain in a large hospital. It might be considered, in many parts of the country, criminal malpractice to attempt the treatment of contagious cases in a general ward and I am exceedingly doubtful, in case an accident occurred, whether the excuse that a nurse had slipped up on her technic would be considered a mitigating circumstance. Dr. Richardson's whole theory depends on the infallibility of the nurse and we must not forget that nurses are only human, and that in contagious nursing, as in any other occupation, there is a limit to the extent of human endeavor. The use of pupil nurses for this method of caring for contagious diseases would be almost impossible, for the reason that it requires a long, continuous training before nurses can be trusted in a ward with mixed infections; and it would therefore be necessary, if this technic were generally adopted, to dispense with the services of pupil nurses and depend entirely on graduates, thus materially increasing the cost. I did not learn from Dr. Richardson whether he would treat a case of scarlet fever and one of diphtheria in the same room, but I can most emphatically state that we would not attempt that in Philadelphia, where we have a staff of experienced nurses. Another point to be remembered in connection with municipal institutions is the fact that the nursing force is subject to sudden and extensive changes, and if such a thing should happen in an institution where Dr. Richardson's technic had been adopted, the whole system would be immediately turned upside down. I have recently learned that a number of smaller cities have attempted the treatment of contagious diseases in general hospitals, only to be met by dismal failure and considerable embarrassment.

Dr. H. O. Collins, Minneapolis: It has been stated that the usual method of disinfecting laundry is not reliable, that the sterilization process sometimes permits linen to go through without being disinfected. What method of disinfecting the linen of contagious patients is the best?

Dr. G. L Kiefer, Detroit: Did Dr. Richardson, in speaking of the isolating of children under 14 years of age in a general hospital, mention the time?

Dr. D. L. Richardson, Providence, R. I.: One week.

Dr. G. L. Kiefer, Detroit: It does not seem to me that that answers the purpose, for the simple reason that a week does not reach the incubation period. We tried it out in one of the children's hospitals in Detroit, and lengthened the time of detention. The child may have been exposed some time before it came to you, or only the day before. One point Dr. Richardson made should be emphasized. It means more to me now than it did before I heard him say it, and that is with regard to the strict surveillance of all nurses so far as the possibility of their being infected is concerned. We have thought we practiced it, but I do not think we were careful enough. Supervision should mean personal inspection of all the employees at frequent intervals. Of course the answer to the gentleman who had the experience with small-pox, is that it was carried to the hospital. Our experience in Detroit with regard to the transmission of small-pox has been quite the opposite of that brought out in this discussion, and I am absolutely sure small-pox cannot be made an exception to these contagious diseases. For example, we put our cases of tuberculosis in a large building that had been occupied as a small-pox hospital. It was one building. There were separate entrances. At first the tuberculosis cases were put in the north wing and the small-pox cases in the south wing. There was never any small-pox in the tuberculosis hospital. We followed that up by having our tuberculosis hospital on the same ground, and never had a case come over to the tuberculosis side. Why some men still class small-pox as the one disease that can be transmitted through the air I never could understand. It is not different from any other.

Dr. Dana Hubbard, New York: New York handles between 75,000 and 82,000 cases of contagious diseases annually in a population of over five million people.

I have had something similar to Dr. Kiefer's experience, except that I attributed the infection to a central focus—in all probability, milk. Fly infection in small-pox hospitals must be considered. We took flies at North Brother island in 1892 and covered them with magnesia dust and flour and turned them loose; it was astonishing to see how many of these flies turned up in the kitchen. The hospital (Riverside) was built in units. The small-pox service is in a large, two-story brick structure, thoroughly screened, as we thought, with double doors at entrances, but the doors constantly being opened and shut let flies in and out. The small-pox patient, by reason of the pus odor, attracts flies, and it is difficult to keep them away from him. For eighteen months following the installing of screens we did not have a single case of small-pox develop in another ward. The

foundling service gave us some bad cases of nasal diphtheria which attracted flies, and before the screens were installed small-pox appeared from time to time in this service. This was before the day of the recognition of the bacillus. Diphtheria broke out in our wards as cross-infection quite frequently and, in the small-pox service, more often than small-pox in the diphtheria service. Now, we are thoroughly screened and have very little trouble from cross-infection. I would not hesitate for a moment, if I had competent help, to put a case of diphtheria in any ward with any other contagious disease, as we do typhoid fever. I have seen diphtheria treated in Roosevelt Hospital in ward service without spreading the disease. I firmly believe that the strict aseptic handling of the patient proved that diphtheria could be treated in a general ward the same as typhoid. At the Chickamauga service in the Spanish-American war, we had typhoid fever by the hundred cases and I attributed its spread entirely to flies. Here the flies were smeared with magnesia dust and flour and turned loose and were caught in numerous other regimental camps. The toilets were open and unscreened. I believe typhoid fever in the Spanish-American war existed because of the failure to recognize the cause and to take proper precaution. I take exception to the elimination of fumigation. I do not believe we can say that fumigation is "not worth anything." Fumigation, properly done, will answer a good purpose. There are many instances where disinfection is necessary and can be properly done.

DR. J. P. SEDGWICK, Minneapolis: From my experience it is possible, with proper care in nursing and proper care of the hands, to prevent carrying these contagious diseases in a manner that we before thought impossible. There is a type of contagious disease which is frequently not considered such in hospital work, and which usually causes the infants more trouble than small-pox, diphtheria or scarlet fever. This type is what I might call, for want of a better name, the grippal infection, an infection of the respiratory tract particularly, which occurs frequently in children's wards. We have records in our wards in which the weight lessens with these infections and rises slowly after they are remedied, and we can follow these two together. We see this repeatedly. I think I can agree with one of the writers in the *American Journal of the Diseases of Children*, that these acute infections of the respiratory, urinary and gastro-intestinal tracts are more important to the hospital infants in causing a larger death-rate and holding back an increase in weight than are the common acute contagious diseases. The hospital grippal infections in infants, which are being studied so much by pediatrists, are important. Meyer believes that the well-known "hospitalism" of infants is due to these "grippal" infections.

DR. JOHN A. HORNSBY, Chicago: I am in almost constant receipt of inquiries concerning the proper means of taking care of the communicable diseases under the average conditions of a general hospital. We are not discussing ideal conditions for the care of the communicable diseases in institutions specially devised for them and handled by people specially trained over a period of years, but about institutions in the United States that are not equipped for taking care of these cases, but which, under the obligation of our newly conceived responsibilities, find themselves obliged to consider such. Goldwater and a good many of the best men in the hospital world think that no hospital of any kind ought to be permitted to exist unless it is prepared to take proper care of every case that comes to it, or of every disease that develops after the patient gets in; for instance, an eye hospital must take care of a pneumonia, or any other disease which develops. How is a hospital that is run for general purposes, to take care of any sort of sickness under crude equipment, going to handle those cases? Is it sufficient that we put a tapeline around the bed and practice Koplik's constructive isolation? Can we maintain it? Have we the nurses properly trained for it? Can we develop the technic of it among our medical men? Dr. Richardson's scheme is ideal; but I do not believe that the twenty-five- or fifty-bed hospital in Podunk can render such technical care of communicable diseases. Isolation is the thing, but we ought to think ahead a little to a time when they are about to build a hospital for Podunk. How should it be built so that they can take care of those cases in the light of our present knowledge of communicable diseases? The best way to do it is to isolate in the architecture of the building. Suppose, for instance, that we are building a hospital, and we have an area for communicable diseases, say four wards on two floors. Let us assume that we have a whole medical staff that is entitled to take care of patients; how would it do to have separation in the architecture and have different sorts of clothes for each one of the units? Suppose we have scarlet fever, diphtheria, and, let us say, small-pox. Why not have some brown clothes for scarlet fever? They have been sterilized and cleaned up and put in the lockers of the dressing-room to be there put on. Suppose the doctor puts on that brown suit, with head-piece, mouth-piece and gloves. He goes up with the brown clothes on to the scarlet-fever ward. On the same floor he has a case of diphtheria, across the hall. He goes over there, but the nurse says: "I am sorry, Doctor, but you have on the wrong clothes. Won't you kindly put on your diphtheria clothes?" That means that he has to go back, clean up, and take off the scarlet-fever clothes and put on the clothes used in case of diphtheria. I contended in one hospital that we have been building, that that sort of technic was ideal for the particular condition we had to meet.

DR. ROBERT J. WILSON, New York: The Schick test for determining if diphtheria antitoxin is present normally in the blood, is important with regard to the spread of diphtheria in the hospital. If no reaction follows, it means that there was one or two or three units of antitoxin in the blood; when we do give the injections to secure active immunization the antitoxin runs up immediately. The number of patients immune to all diseases all the time is very large, and it can be proved for diphtheria and inferred for scarlet fever, measles or any other infectious disease. To say that one cannot contract any disease by air-borne dust or exudates that have been recently deposited in the room, that is, within the length of time that we know the organism could not have died by drying, is contrary to scientific reasoning. If but little infectious material were in the room and no cases were susceptible no disease would be contracted, and, therefore, one could argue it was not air-borne; if out of many cases only one was susceptible and there were only a little infected dust, disease might not be contracted because those immune might inhale the dust and the non-immune would not get it. I am not going to consent to the non-air-borne proposition until it is proved that the organisms die instantly or within a reasonably short period of time after being deposited. No visitor is allowed from a home where there is contagious disease. In reply to Dr. Collins relative to the best way to sterilize the laundry; I think sterilizing washers give the best results; if you get the contents of the washer up to the boiling point all the germs that produce contagious disease are destroyed. In New York City we have a minimum period of quarantine—scarlet fever thirty-five days, measles five days from the beginning of the initial rash. We never discharge a patient who gives us reason to believe that infectious organisms are still retained in the discharges. Dr. Cook asked how you would educate all practitioners to be diagnosticians. It cannot be done, but every community should have in it one good diagnostician. Dr. Sedgwick referred to grippal infections. We found in the Willard Parker Hospital, about fifteen years ago, that some of our patients with very severe diphtheria were being carried off with bronchopneumonia, and we thought it spread from bed to bed; so to get around that condition we built stalls between every two beds in a ward and by this simple procedure the number of cases of bronchopneumonia was very much diminished. It has been proved that the droplets of sputum emitted by ordinary speaking will be suspended in the air for some time before they finally drop to the ground. Without intervention the slightest draft would carry them over to the adjoining bed; the wall prevents it.

DR. D. L. RICHARDSON, Providence, R. I.: Dr. Bracken spoke of carriers among visitors. These are, of course, a possible but I do not believe a very frequent source. If we rule out visitors to the children's ward under 14 years of age that would eliminate danger to a large extent. With regard to nursing, if one tries for oneself what nurses can do and will do regarding aseptic nursing, one's ideas will change. Relative to pupil nurses, we have a staff of graduate nurses and from twelve to fifteen pupil nurses who come to us and work in the diphtheria and scarlet-fever wards, and one isolation ward, and they stay with us only two months altogether, but you would be surprised at the intelligence and care they exercise. I grant that it would be a good deal better if you could have all graduate nurses, but the expense is sometimes prohibitive. If you can get nurses who have had operating-room training, and have had some experience, say in the third year of their course, and teach them the simple elements of absolute cleanliness, you can expect better results. I advise anybody who does not believe it to take a ward of six beds in an infectious hospital, and try it. That is the only way to be convinced. Dr. Kiefer spoke of a detention period of one week. I spoke of that merely as a working-basis which we have taken in our hospital. It is not long enough for measles, chicken-pox, etc., but it is a great help, because the numbers of cases that would be exposed just before admission to the hospital would be comparatively small. All hospitals ought to be screened. It makes no difference whether they are contagious hospitals or not.

The respiratory and intestinal conditions I did not speak of. Dr. Sedgwick brought that to mind. In the children's hospital some day we will carry out the same exact conditions throughout. Dr. Hornsby spoke of isolation in architecture. I do not at all agree with him in that. Theoretically, every infectious-disease patient that enters the hospital should have his own room, nurse and service. Practically, that is utterly impossible, and with a small or a large hospital, unless it is a very large community, they cannot afford to build either a hospital or a portion of a hospital for measles, another for whooping-cough and another for chicken-pox, etc. If hospitals are to furnish an asylum for infectious diseases, they must provide the most feasible plan. You cannot control infection unless you have careful supervision and absolute cleanliness. With regard to outside physicians coming in, we have a consulting staff, and I have failed to find a man who will not do as he is requested.

OIL OF CHENOPODIUM IN THE TREATMENT OF HOOKWORM INFECTIONS

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The majority of observers at present regard thymol as the vermifuge of choice in the treatment of uncinariasis. The work of Stiles and of the Porto Rican Commission has clearly demonstrated its value. The administration of thymol, however, is associated with certain very definite disadvantages: 1. It does not succeed, in a certain number of individuals, in eradicating the infection. 2. Its ingestion is accompanied in about 45 per cent. of cases by disagreeable aftereffects, as has recently been pointed out by Stiles and Boatwright.[1] 3. In a few instances, it has produced fatal poisoning. 4. At present, owing to conditions brought about by the European war, the supply of thymol is limited and its cost high.

It seems desirable, therefore, to call attention to the use of a vermifuge which has apparently been entirely overlooked in this country in the treatment of hookworm disease and whose value in this connection has recently been pointed out by Schüffner and Verwoort.[2] The object of their investigations was to determine whether or not thymol deserves its reputation as an anthelmintic in uncinariasis, especially as compared with more recently suggested remedies. Accordingly, 1,457 infected individuals were put through two "cures" at intervals of several days, thymol being regularly alternated with one of the other preparations to be tried out. In this manner two parallel columns of statistics were obtained, one in which a group of patients had received thymol first, the other in which they had taken it second. So both drugs had the opportunity of demonstrating their action on untreated as well as on previously treated parasites. The strength of the anthelmintics was rated in proportion to the number of worms found in the washed stools.

As a result of these comparative studies Schüffner and Verwoort determined that the "coefficient of efficacy" of the various drugs investigated, was as follows:

1. Oil of eucalyptus, 38.
2. Beta-naphthol, 68.
3. Thymol, 83.
4. Oil of chenopodium, 91.

Cases of infection with both the New and Old World types of worm were included in their series. In no instance in this large number of observations were disagreeable symptoms noted, nor were there any signs of intoxication following the taking of the chenopodium. They conclude, therefore, that the oil of chenopodium, in view of its remarkable efficiency and its harmlessness, deserves a thorough trial in the campaign against uncinariasis.

CASE REPORTS

The following case, from the service of Prof. L. F. Barker, and shown before the Johns Hopkins Hospital Medical Society, Dec. 15, 1913,[3] afforded an unusually good opportunity for trying out the comparative efficiency of thymol and the wormseed oil. It is, as far as can be determined, the first report in this country, of a case of uncinariasis treated with oil of chenopodium.

CASE 1.—O. C., a Norwegian sailor, aged 23, was admitted to the Johns Hopkins Hospital, Oct. 13, 1913, complaining of headache, general bodily pains and swelling of his legs. The present illness began in Mexico one month before admission. There, for the first time in the course of his wanderings, he went about barefoot. He soon developed a painful sore on the dorsum of the left foot, which discharged and resisted all efforts made to treat it. There was no itching of the foot. Shortly afterward the feet and legs began to swell and the patient felt weak and incapable of work. He entered a hospital in Mexico and remained there for three weeks, during which time he was given no medicine. The swelling of his legs disappeared, however, and he was discharged somewhat improved. Twelve days before admission here, his legs again began to swell, he felt feverish and weak, and there was moderate diarrhea, so he boarded a ship for this country and landed in Baltimore.

On admission, there was striking pallor, fever, tachycardia, brawny edema of ankles and lower legs and a pigmented scar on the dorsum of the left foot. He was extremely weak and very irritable. The blood showed: red blood cells, 1,660,000;

1. Stiles and Boatwright: Thymol Administration: Subjective Effects in 464 Administrations in 243 Patients, Pub. Health Rep., 1913, xxviii, 1497.

2. Schüffner and Verwoort: Das Oleum chenopodii gegen Ankylostomiasis und eine neue Methode der Wertbestimmung von Wurmmitteln, München. med. Wchnschr., 1913, lx, 129.

3. Levy: A Case of Infection with Agchylostoma Duodenale Treated with Oil of Chenopodium, Bull. Johns Hopkins Hosp., 1914, xxv, 100.

white blood cells, 6,440; hemoglobin, 25 per cent. (Sahli). In addition, there were seen many hyaline and crescent forms of estivo-autumnal malaria. An examination of the stools revealed ova of *Trichocephalus dispar* and *Ankylostoma duodenale*.

The malarial infection was soon under control. The whipworm ova spontaneously disappeared from the stools following vigorous purgation. But the usual medication with thymol, as recommended by the Porto Rican Commission, failed to expel the hookworms, though the treatment was thrice repeated at intervals of one week.

Accordingly, the patient was given the oil of chenopodium essentially in the manner prescribed by Schüffner and Verwoort. He was starved for eight hours, at the end of which period he was given an ounce of Epsom salt. Two hours later 16 drops of the oil of chenopodium on a teaspoonful of granulated sugar were administered. This dose was repeated at two-hour intervals until three doses had been given. Two hours after the last dose of chenopodium the patient was given an ounce of castor oil, containing 50 minims of chloroform. On sifting of the stools collected during the next twenty-four hours, nineteen hookworms of the Old World type (*Ankylostoma duodenale*) were found. Ova continued to be discharged in the feces. On repetition of the treatment five days later, seven more hookworms were expelled and no ova could subsequently be demonstrated in the stools. Another course of chenopodium was given to make sure that no parasites remained; none were expelled. The stools continued free from ova. The man gained 30 pounds in weight. His blood on discharge showed: red blood cells, 4,110,000; white blood cells, 11,000; hemoglobin, 70 per cent. (Sahli).

A second case demonstrates in like manner the prompt success of the chenopodium when thymol medication had failed.

CASE 2.—C. P., a South Carolina farmer, aged 33, entered the Johns Hopkins Hospital in the service of Prof. T. C. Janeway, Sept. 17, 1914, complaining of stomach trouble. He had previously been admitted to the hospital in September, 1906, with similar symptoms, which had appeared following an attack of "ground itch" earlier in the year. On the first admission, hookworm ova were found in the stools, and several thymol treatments were administered. Following therapy there was a gain of 6½ pounds in weight coincident with general improvement, and on discharge no ova were seen in the feces.

The present illness was a continuation of the gastric disturbance which had brought the patient to the hospital in 1906. After a period of about two years, during which he was relatively free from discomfort, there developed fulness after meals, belching and vomiting, associated with sweating, headaches, dizziness, dimness of vision and roaring in the ears.

Examination revealed a moderate secondary anemia, and an eosinophilia of 9.2 per cent. Ova of hookworm were seen in the stools.

The usual thymol treatment was ineffectual; ova continued to be discharged in the feces. So five days later the oil of chenopodium was administered as follows:

First Day: No supper. One ounce of Epsom salt at 8 p. m.

Second Day: 7 a. m., 9 a. m. and 11 a. m., 16 drops of the oil of chenopodium on a teaspoonful of granulated sugar; 1 p. m., 1 ounce of castor oil containing 50 minims of chloroform.

Unfortunately, the resultant stools were not carefully sifted and only one female worm (*Uncinaria americana*) was observed in a casual examination of the "castor-oil stool," in which the parasites are usually found. During the three weeks following the chenopodium medication, while the patient remained under observation, no ova were found on repeated stool examinations, and he left the hospital with a gain of 15 pounds in weight, much improved.

It is worthy of note that in neither case did the patient object in the least to the taste of the chenopodium, nor did he complain of any unpleasant effects following its administration.

Further experience is afforded in the following personal communication from Dr. C. G. Guthrie:

During the past summer, which was spent in a hospital in Central America, an opportunity was presented of testing the efficacy of the drug (chenopodium) on a fairly large scale. Most of the patients admitted to the hospital were either Jamaican negroes or whites of the peon class. Among both of these the incidence of infection with intestinal parasites was extremely high; fully 80 per cent. harbored some form of parasite. Multiple infections were the rule, in one instance six types being present. Next to whipworm, the form of intestinal parasite most frequently encountered was the hookworm; both the Old and the New World types were found, the latter being the more prevalent variety.

Thymol was the method of therapy in vogue at this hospital, and while it was, in the main, successful, many cases were observed that required repeated treatments, and a few in which three courses of thymol still left the patient heavily infected.

Accordingly, it was considered desirable to try the effect of oil of chenopodium. The method of administration was patterned after that of Schüffner and Verwoort, except for the fact that the drug was administered in capsules. The criterion used for an effectual treatment was the disappearance of hookworm ova from the stools. The treatment was tried in about sixty cases, and the results compared with those obtained by other methods. These results, with the conclusions drawn, may be briefly mentioned as follows:

1. The treatment was well borne; no ill effects were noted and no complaints of subjective discomfort were elicited on careful questioning.

2. The treatment was successful in both Old and New World infections. It sometimes had to be repeated, but it practically never failed to eliminate some worms or to reduce the number of eggs in the stool.

3. It succeeded in cases in which thymol had been tried, sometimes repeatedly, and had failed.

4. When given in parallel series to unselected cases, the chenopodium seemed much more efficient than thymol.

OIL OF CHENOPODIUM

Oil of chenopodium, or American wormseed oil, as it is commonly called, is a volatile oil distilled from the fruit of *Chenopodium anthelminticum* Linné (of the *Chenopodiaceae* family), a roadside weed common in the United States, and most abundantly found in the eastern portions of the country. It has always been official in the Pharmacopeia of the United States. It is largely distilled in Maryland and is often referred to as "Baltimore oil" in contradistinction to the western or "Missouri oil" which has also played a rôle on the market. When recently distilled, it is of light yellow color, but becomes deeper yellow or even brownish by age.

It has a peculiar, penetrating, somewhat camphoraceous odor and a pungent, bitter, though not altogether disagreeable taste. Garrigues found it to be composed of two distinct oils separable by distillation; one of these has the formula $C_{10}H_{16}$ and is probably limonene. The other is heavier and possesses the formula $C_{10}H_{16}O$. A body having the formula $C_{10}H_{18}O_2$ has been recovered from the oil by Brüning.[4] Both in its general characteristics and pharmacologic action, it resembles closely the mother substance.

The oil has long been effectively used as an anthelmintic in the roundworm infections in children in a dosage of from 5 to 10 minims, two or three times

4. Brüning: Zur Kenntnis des amerikanischen Wurmsamenöles, Ztschr. f. exper. Path. u. Therap., 1906, iii, 564.

daily for two days, to be followed by a brisk purge (Wilkins,[5] Brüning,[6] Gockel[7]).

Its cost at jobbers' prices is from $2.50 to $3 a pound.

The account of the oil in the United States Dispensatory is concluded with the following statement: "Oil of chenopodium has in various cases acted as a lethal poison." In order to obtain further information concerning its toxicology, regarding which the available data are exceedingly scanty, the reported cases of chenopodium poisoning have been collected and are given in the accompanying table.

REPORTED CASES OF POISONING WITH OIL OF CHENOPODIUM

Case No.	Observer	Age of Patient, Years	Dose of Oil	Symptoms	Result	Remarks
1	P. T. T.[9]	6	Not stated; less than 1 ounce	Deep, stertorous breathing; small, weak, rapid pulse; eyes insensible to light or external objects; convulsive movements of right half of body; attempt at deglutition threatened suffocation	Death in 36 hours	Vial of what purported to be "Wormseed oil" obtained from a wandering quack; to be given in doses of 15 drops until worms were expelled
2	W. C. Paramore[10]	6	8 drops 3 times daily for 2 days; 8 drops on 3d day	Drowsiness; thirst; fever; nausea and vomiting; coma	Death in 4 days	Coroner's case; oil not followed by a purge
3	W. C. Paramore	3	6 drops 3 times daily for 2 days; 6 drops on 3d day	Drowsiness; thirst; fever; nausea and vomiting; spasms; coma	Death in 5 days	Member of same family as Case 2; no purge
4	W. C. Paramore	1	4 drops 3 times daily for 2 days; 4 drops on 3d day	Drowsiness; thirst; fever; nausea and vomiting; spasms; coma	Death in 8 days	Member of same family as Cases 2 and 3; no purge
5	T. R. Brown[11]	31	1½ ounces plus 30 drops of turpentine at a single dose	Vertigo; nausea and vomiting; deafness with buzzing in ears; periodic motor aphasia; staggering on attempting to walk; peculiar actions suggesting dementia; subsequently, spasm of right arm and hand, followed by right-sided paralysis; fever; convulsions; terminal icterus	Death in 5 days	Physician had ordered 1 ounce of castor oil and 20 minims of turpentine; prescription changed by neurotic patient
6	A. C. Pole [12]	2	2 teaspoonfuls in 1 afternoon	Prostration; restlessness; tachycardia; staggered on attempting to stand or walk; headache; abdominal pain; vomiting; deafness	Well in 5 days	Symptomatically treated; deafness gradually disappeared
7	I. C. Gable [13]	63	"Nearly" an ounce in divided doses in 1 day	Initial "peculiar symptoms" rapidly followed by coma, profuse perspiration and salivation; tachycardia; dilated pupils	Death next day	Necropsy: "No special symptoms in the stomach, though there was considerable smell of the oil about the abdominal viscera
8	Alfred North [14]	12½	1 dram	Next day heavy breathing; difficult to rouse; unsteady gait, with partial loss of coordination; frontal headache; ringing in ears; deafness; dulled mentality; 5 days after onset, coma, with weak, slow pulse; dilated pupils, sluggish to light, and vomiting; on 7th day, hallucinations; subsequently, steady improvement	Recovery in 2 weeks	Chenopodium given in a mixture so that exact dose is uncertain; partial persistence, at end of 2 weeks, of headache, deafness and tinnitus
9	Alfred North	10	About 1 dram	Nausea and vomiting; unable to walk or adjust clothing owing to ataxia; deafness, tinnitus and frontal headache	Recovery in a few days	Sister of patient reported as Case 8; given dose from same mixture; deafness still present after two weeks
10	Cited by North[15]	Adult	2 doses of "30 grains" each 3 hours apart	Found in coma	Death	No details given
11	A. K. Bond[16]	3	10 drops ineffectual; 2 days later ½ dram	Vomiting; stupor; pupils small; sweating; twitching of right hand; tachycardia; suppression of urine; râles in lungs	Death same day	
12	E. T. Ramsey[17]	61	1 tablespoonful	Numbness and tingling in hands and feet, followed by peaceful sleep; nine hours later, roused with difficulty; irrational; rapidly went into coma	Death same day	Patient a mentally deficient epileptic; administered overdose to herself

9. P. T. T.: Boston Med. and Surg. Jour., 1851, xlv, 373.
10. Paramore, W. C.: Chicago Med. Times, 1875, vii, 336.
11. Brown, T. R.: Maryland Med. Jour., 1878, iv, 20.
12. Pole, A. C.: Maryland Med. Jour., 1880, vii, 107.
13. Gable, I. C.: Philadelphia Med. Times, 1880, x, 404.
14. North, Alfred: Am. Jour. Otol., 1880, ii, 197.
15. North, Alfred: New York Tribune, June 15, 1880.
16. Bond, A. K.: Maryland Med. Jour., 1897, xxxvii, 289.
17. Ramsey, E. T.: Northwest. Lancet, 1903, xxiii, 325.

An analysis of this table brings out the following points:

1. Eight of the twelve cases occurred in children under 13 years of age.

2. Nine of the twelve cases ended fatally.

3. In seven instances, the individuals received what may be considered an overdose. Of the remaining five, the dosage is uncertain in two. In one of these (Case 1), what purported to be wormseed oil was obtained from a wandering quack, so that its exact nature is by no means certain. Furthermore, no limit was set as to the amount which might be given. In the other case (Case 10) we have only the account of a newspaper reporter to the effect that "two doses of thirty grains each were taken, three hours apart."

4. In the cases reported by Paramore (Cases 2, 3 and 4) death occurred in three members of the same family following the administration of what were apparently doses which may be considered within the limits of safety, though not followed by the usual purge. All were coroner's cases, yet no question was raised as to the amounts said to have been given by

5. Wilkins: An Account of the Oil of Chenopodium Anthelminticum, Philadelphia Med. Museum, 1808, v. 252.
6. Brüning: Weitere Erfahrungen mit 'em amerikanischen Wurmsamenöl als Antiaskaridiakum bei Kindern, Deutsch. med. Wchnschr., 1907, xxxiii, 425.
7. Gockel: Ueber Askaridiasis und ihre erfolgreiche Behandlung mit dem amerikanischen Wurmsamenöles, München med. Wchnschr., 1910, lvii, 1643.

the father, nor was there any inquiry as to the nature of the contents of the bottle. Paramore himself asks, "Are these fatal results an accidental coincidence, or are we to suppose that in these three children some peculiar idiosyncrasy existed, forbidding the use of the remedy?" To which the editor of the *Chicago Medical Times* replies:

In the cases above reported the wormseed oil, which was probably the Oleum Chenopodii, was administered in doses at least one-third larger than are usually recommended. Another element which may figure in the case is the difficulty which persons unaccustomed to dropping find in accurately dispensing medicines by the drop, hence the possibility that these children may have even taken more than was thought or intended.

5. The symptoms of poisoning have made their appearance usually several hours after taking the oil. Nausea, vomiting, abdominal pain and headache have been the first warnings of trouble. These were soon followed by drowsiness, deafness and tinnitus aurium, the latter having been a prominent feature in several instances.[8]

Ataxia, with staggering on attempting to walk, is noted by four observers. In the fatal cases coma has rapidly supervened, with tachycardia, convulsions, and in one instance right-sided hemiplegia. These symptoms indicate clearly irritation of both gastro-intestinal tract and central nervous system.

Concerning the pathologic lesions present, no data whatsoever are available. In the one instance in which a necropsy was performed, there is only the note that "there were no special symptoms in the stomach, though there was considerable smell of the oil about the abdominal viscera." In animals experimentally poisoned with oil of chenopodium, Brüning[3] has found hyperemia and small hemorrhages in the mucous membrane of the stomach and small intestines, and, microscopically, pigment accumulations in the liver and the formation of cylindroid-like structures in the convoluted tubules of the kidney.

MODE OF ADMINISTRATION

A convenient schema, which may be followed in administering the treatment, is herewith given:

First Day: Liquid diet; 8 p. m., 1 ounce of Epsom salt.
Second Day: Omit breakfast and luncheon; 5 a. m., 1 ounce of Epsom salt; 7, 9 and 11, 16 drops of the oil of chenopodium on a teaspoonful of granulated sugar; 1 p. m., 1 ounce of castor oil containing 50 minims of chloroform. Soft supper.
Third Day: Resume full diet.

The treatment may be repeated at intervals of one week until ova can no longer be found in the feces. The worms are usually expelled in the "castor oil stool." It is desirable to add the chloroform to the castor oil, as it appears to assist in the narcotization of the worms in their passage through the intestinal tract. In children, the size of the individual dose of chenopodium as advocated by Gockel[7] in ascaris infections, may well be adopted as a safe standard in the therapy of hookworm disease:

From 6 to 8 years, 8 drops.
From 9 to 10 years, 10 drops.
From 11 to 16 years, 12 drops.
Over 16 years, 12 to 16 drops.

8. Sexton: A Note on the Aural Phenomena Produced by Chenopodium Poisoning, Am. Jour. Otol., 1880. ii, 197.

CONCLUSIONS

1. Oil of chenopodium is an effective vermifuge in the treatment of uncinariasis.
2. It is not unpleasant to take, its ingestion is followed by no disagreeable symptoms and it is cheap.
3. In therapeutic doses it is non-toxic.
4. Oil of chenopodium deserves a thorough trial in the campaign against hookworm disease.

I desire to thank Professors Barker and Janeway for permission to report these cases.

CONGENITAL PHTHISIS BULBI

WITH REPORT OF A CASE

AARON BRAV, M.D.
Ophthalmologist to the Lebanon Hospital
PHILADELPHIA

Phthisis bulbi as a result of some suppurative traumatic or non-traumatic uveal inflammation is not a very rare condition, but shrinking of the globe as a result of uveal inflammation *in utero* is very rare indeed, and deserves to be recorded in medical literature. The case which I am reporting has been carefully differentiated from other congenital abnormalities, such as microphthalmus and anophthalmus, and by a process of exclusion fortified by a microscopic examination of the ocular discharge the diagnosis of phthisis bulbi seems clinically to be certain.

The child was delivered by Dr. Rappoport. Labor was normal. No instruments were used. While trying to instil a 2 per cent. solution of silver nitrate into the child's eyes, the doctor noticed that there were practically no eyeballs.

At the request of Dr. Rappoport I saw the case in consultation at Atlantic City on the third day after birth, July 29, 1914, and found the following conditions: Baby is well developed; weighs about 10 pounds; has several erosions on the face. One on the chin had some suppurative appearance. Eyelids were normal but closed. There being no attempt at elevation, they were, however, easily separated. I separated the lids with lid retractors so as to get a good view of the orbital contents. Both orbits showed marked signs of inflammation and contained some pussy discharge. There were no extraconjunctival folds or adhesions, but the conjunctiva was very much congested. Deep down in the right orbital cavity there was a remnant of an eyeball the size of a large pea. Scleral tissue was easily recognized, in the center of which was a slight remnant of corneal tissue about 2 mm. No pupillary area could be determined; neither was there any iritic tissue noticeable. The stump was soft and quadrilateral in shape and still showed evidences of a retrogressive inflammation. The conjunctiva was red and congested, but did not show any signs of an anatomic anomaly. The left eye was also in a state of inflammation and the stump was much smaller than in the right eye. The stump here was so small that it could only be seen after the lids had been well separated with lid retractors, and was deep down in the apex of the orbit. It could not be palpated. The discharge in the left eye was more marked than in the right eye. Limbs, upper and lower extremities were normal; so was the trunk and head of the baby. Temperature of the baby by rectum was 101.

The parents are healthy and apparently free from any taint. The mother is a well-developed woman and has had two healthy children before. Mother was well during the period of pregnancy except for a pustular acne eruption which appeared about one month before delivery. This was probably an external manifestation of some deep-seated infection. The mother attributed the condition to materna impression as she says her older child had been playing with a doll that

had no eyes. The only other etiologic moment the family recalls is a fright of the mother during a severe thunderstorm which occurred about three weeks before delivery. It is hardly necessary to say that neither of these causes could be given any consideration. Everything points to a severe inflammation. At my suggestion Dr. Rappoport has made a microscopic examination of the ocular discharge of the infant, and he reports to me the presence of diplococci which did not respond to the gonococcic stain.

There is no doubt in my mind that we deal here with a case of phthisis bulbi, resulting from a suppurative intra-uterine uveitis. The marked local inflammatory symptoms, the absence of any other anatomic anomaly, the pustular eruption on the mother four weeks before the delivery of the child, the presence of the diplococcus in the ocular discharge, and the appearance of the stump make the diagnosis of phthisis bulbi certain. Of course the number of cases of microphthalmus reported in the literature are many, but most of them were the result of some arrest of development.

Opinions on this subject are divided. Hirschberg, von Graefe, Samelsohn and Deutschmann advanced the theory of intra-uterine inflammation, while the developmental theory was defended by Hess and Treacher Collins. There is, however, a definite group of cases in which there can be no reasonable doubt that the condition is one of congenital phthisis bulbi. This is especially true of Schaumberg's[1] case in which the eye continued to shrink after birth. In my case the inflammatory cause is well substantiated by clinical evidence and laboratory findings.

917 Spruce Street.

A SEVERE CASE OF EXOPHTHALMIC GOITER, WITH COMPLETE RECOVERY WITHOUT OPERATION, REST OR MEDICATION

EDWARD SWASEY, M.D., WORCESTER, MASS.
Oculist and Aurist to Worcester City Hospital

It may not be safe or profitable to draw conclusions from any one case of illness, either medical or surgical; and yet a single case may present some features of importance and interest that may render its history worthy of public record. I believe the following case is in this class:

Mary M. is now 24 years of age. When she was 12 I gave her glasses for a rather high degree of astigmatism. She has been under my observation at intervals for these past twelve years. Some five or more years ago her mother first noticed a growth in the neck. This rather rapidly increased in size so that the neck band of her dresses required frequent enlargement. The girl soon began to show signs of nervousness, was easily fatigued, and complained of palpitation on slight exertion. Soon the eyes seemed to enlarge and become prominent. She consulted her family physician who gave her some simple tonics for her evident weakness.

Some months later she came to my office to see if some change in her lenses was necessary. The change in her appearance since her last visit one year before was decided, for now there were all the classical signs and symptoms of a typical case of exophthalmic goiter. The eyes were bulging, so that a line of white sclerotic was seen between the iris and the upper lid. The swelling in the neck was firm and pulsating; the pulse was then more than 150 per minute, soft and compressible. The ear or hand over the cardiac area showed a large pulsating heart, in rapid action. In fact, all the signs and symptoms of a well-established case of Graves' disease were present. I have had the case under observation from that time to the present. I gave her no medicine, but for a time she had a simple tonic from her physician and also from one of the city dispensaries.

The chief interest in this case, I believe, is not that she has entirely recovered, and that all her symptoms have disappeared; but that during the entire duration of these severe symptoms she was daily at her work at the counter of one of the largest department stores in the city. She continued her tonics for a year or more in a somewhat irregular way, but finding no benefit from their use gave them up entirely. A year or more after she had given up all medication she began to improve, in that she felt stronger and more able to do her work; the heart action was less troublesome, the swelling of the neck less evident. This improvement has gone slowly but steadily on until now (for I saw her but a few days since) the neck is free from any swelling, and palpation reveals no thyroid enlargement; the pulse is strong, steady and under 80 per minute; the eyes have returned to the normal in position and appearance. She has never taken any of the modern powders or serums that are now given for this trouble. She has never taken any season of rest in bed, but, on the contrary, has taken no vacation, but worked on. In the months that the symptoms were at their worst I felt certain she would have to come to a surgical operation to save her from the severe toxemia that I thought might overwhelm her in a severe attack of diarrhea or fatal exhaustion; but she said she must keep at her work and would not listen to advice for an operation.

I have recently followed the case of a patient in whom the symptoms were not more severe than in this poor girl, and not so long in duration, that finally came to operation in the Johns Hopkins Hospital, but the patient survived the operation but a few hours. I have had for a number of years a patient who has the eye symptoms and enlarged thyroid. Both of these have been stationary for years.

It may be that cases similar to this are common, and in a somewhat careful search in the literature of the subject I find many recorded cases of recovery, of course; but I have yet to find the history of one with severe symptoms for many months and a total duration of more than five years, yet going on to complete recovery that has not had prolonged course of treatment, either by rest in bed, the use of the modern drugs, the application of some external treatment to the thyroid, the Roentgen ray, or one or all of these at different times. Hence I believe that the case of this patient who had no treatment, but just work, and plenty of it, and yet has gone on to complete recovery, deserves a place in the records of this serious disease.

The question may arise regarding the subsequent history of this patient. Will this great and prolonged activity of the thyroid finally result in an atrophy more or less complete and cause a myxedema? It will be interesting to watch the patient for a few years.

390 Main Street.

1. Schaumberg: Dissertation, Marburg, 1881.

TRAUMATIC RUPTURE OF THE HEALTHY AORTA WITHOUT EXTERNAL SIGNS OF THE CAUSE OF DEATH

GORDON GROTE COPELAND, B.A., M.B., TORONTO

Complete rupture of the healthy aorta without external signs of the cause of death is of sufficient rarity to warrant the publication of a synopsis of necropsy which I made recently.

A laborer, aged about 40 years, was struck by a large mass of falling earth which gave him a glancing blow on the back and knocked him down, though it covered only his legs. A few seconds later he was picked up dead, and was seen by a medical man in a few minutes who could find no cause externally for the sudden death. I examined the body a few hours later but saw no apparent cause of death. There was a large scalp wound on the forehead down to the bone,

but the frontal bone was not fractured. The mouth, nose and ears were free from blood or foreign matter. There was a little frothy mucus in the back of the throat. There were several small bruises on the body, especially over the right loin, and a suspicion that the pelvis was fractured.

The scrotum was torn and the testicles lay loose between the thighs. There was practically no hemorrhage.

The face, tongue, gums and mucous surfaces generally were blanched, and suggested internal hemorrhage.

INTERNAL EXAMINATION

The diaphragm was about 4 inches above the intercostal notch, and did not communicate with the thorax; though it was torn at several places, the rents did not extend through the muscle completely. There were nearly 10 ounces of free blood in the peritoneal cavity. The liver was terribly torn and ruptured so as to admit the whole hand at several spots. The right kidney was torn, but the capsule was intact and the blood did not go into the pelvis of the kidney or the ureter. The bladder was intact although the pelvis was fractured from the symphysis through the body of the pubic bone. The peritoneal surfaces of the intestines and many of the blood-vessels going to them were torn. With these lesions the abdominal cavity should have been filled with blood.

The whole condition was explained when the thorax was opened. The left pleural cavity contained 38 ounces of measured fluid blood. Opening into this cavity were the gaping ends of the descending aorta, which was cut across as cleanly as with a knife. The ends were separated about 1 inch at the widest part and half an inch at the closest part. The rupture was at right angles to the length of the artery. The aorta was quite healthy; the intima was smooth and devoid of plaques and dilatations as far as could be seen or felt. The heart was firmly contracted and the chambers were empty. The valves were normal, as was the heart in every particular. The coronary arteries were patent for a distance of 2 inches. I passed my finger through the aortic valve (the heart being opened *in situ*), and at the proximal opening in the torn artery, my finger tip appeared. The distance from the aortic valve to the tear was about 3½ inches. The right lung was adherent throughout to the chest wall and was very hard to remove. All the lobes were fused and the organ was quite solid and non-crepitant; it resembled the stage of red hepitization of pneumonia. The left upper lobe was normal but the left lower contained a lot of coagulated blood. Aside from the injury to the aorta, the man would have died rapidly from the terrible hemorrhage that would otherwise have resulted from the injuries to the liver, mesenteric vessels, etc. What caused the rupture I am unable to say, though the idea of a force acting like a contrecoup seems tenable.

73 Bloor Street, East.

EXOPHTHALMIC GOITER AS A CLINICAL MANIFESTATION OF HEREDITARY SYPHILIS

OSCAR CLARK, M.D., RIO DE JANEIRO, BRAZIL

I have had the opportunity, during the last five years, of observing an interesting case of exophthalmic goiter in a woman, aged 24, in whom there can be no doubt that it is a late clinical manifestation of hereditary syphilis. The patient began about five years ago to suffer from palpitation and tachycardia, accompanied by violent attacks of nervousness, while her mother also called attention to a swelling of the neck. There was very little protrusion of the eyes.

Four years ago when I was first consulted (shortly before leaving on a journey to Europe, during which I was kept informed of the progress of the case), the clinical symptoms had become decisive and the syndrome grew steadily worse until the patient fell into a drowsy, almost comatose condition, with pulse over 200 beats, the sphincters quite paralyzed, with continuous vomiting lasting a fortnight. Dr. Sylvio Moniz, a well-known Brazilian physician, was summoned to the patient in this very bad condition and had the happy thought of trying the Wassermann reaction. To this he was led by the "Olympic forehead" and the *crâne natiforme*, being told also that the girl when 12 years old, had had several "epileptiform" fits. The Wassermann reaction was strongly positive, both with the patient's mother and with the patient herself.

With this diagnosis, Dr. Sylvio Moniz prescribed mercurial frictions and epinephrin (1:1,000 solution, 20 drops three times daily) to relieve the arterial hypertension and the vomiting; the latter rapidly ceased, while the patient had in two days recovered consciousness.

After eight days the pulse was just 150 and the goiter sensibly smaller, while the protrusion of the eyes was a little better. After thirty frictions the patient was much better both as regards the hyperthyroidic manifestation and the general health. The next month she was given two injections of salvarsan (0.3 and 0.6 gm.). By the third month she had quite recovered. Neither the goiter nor the protrusion of the eyes was to be seen. The pulse was 75 beats and the nervousness had disappeared.

The patient returned to North Brazil (she was at Rio de Janeiro), and ceased the mercurial and salvarsan treatment. Twelve months later, however, the Merseburger triad reappeared but a fresh recovery has been effected by the same treatment.

I think that this case is undoubtedly one of hereditary syphilis appearing late, as Dr. Sylvio Moniz made every laboratory test in order to exclude tuberculosis, malaria, etc. The father is dead, of what cause I am not aware; the positive Wassermann in the mother has been mentioned. The patient is from the best society and is virgin and there can be no suspicion of syphilis by contagion. She has never had any clinical sign of infection, but on the other hand, presents skeletal stigmata, and, as previously remarked, had epileptiform fits at the age of 12.

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 1855*)

IX

PHYSICAL EXAMINATION AND PHYSICAL EXERCISE

When it is remembered that there are twenty million pupils in the public schools, large percentages (as previously stated) being defective in some form or other, it will not be surprising that the following recommendations for the physical examination of children, as distinct from medical inspection which will be discussed later, is urged. These recommendations seem more or less ideal, but they will come to be the rule, if not the law, nevertheless.

If it is agreed, as advanced by some thoughtful educators and physicians, that from the age of 6 to 8 the time should be devoted to physical culture directed by the public schools, and that book work should not begin until the age of 8, just what would be the method of procedure?

First, no sick child should be allowed in the public schools, whatever the age, and sick children should be immediately sent home to the care of their parents. Every child on entering the public school, we will say at the age of 6, should be carefully examined by a skilled physician. This is more than "medical inspection," which only seeks for contagious or transmittable diseases. The record of each child should be

kept on a large card suitable for filing alphabetically. One side of the card should be filled out by the teacher with such data as name, residence, age, sex, nationality, height, weight; condition of parents (living or dead, and health), brothers and sisters (number and health); what diseases the child has had, besides a record of fits, headaches, asthma, hay fever, bilious attacks or attacks of abdominal pain (information on these subjects should be obtained from the parents by the teacher); the number of rooms in the tenement or house of the family, the number of windows in the sleeping room of the child, the number of persons sleeping in this room; and the kind of food and drink the child receives (question of coffee, tea, etc.).

On the reverse side of this card the physician should note the condition of the hearing, the eyesight and the teeth; defects in the palate; condition of the tonsils, question of adenoids, mouth breathing, condition of the nose, and of the glands of the neck; the shape of the chest and abdomen; any defects of the spine, legs and feet; and the condition of the lungs, heart and abdominal organs. If there is bed-wetting it should be recorded, and in such cases the condition of the prepuce noted by the physician, or the condition of the clitoris noted by the trained nurse. If there is suspicion of kidney disturbance the urine should be examined. If the child appears anemic the blood should be examined. A general statement of the state of health and nutrition, and the condition of the skin should be noted; also the medical opinion of the development of the child up to the present time. The disposition of the case should also be stated, that is, what advice was given. The card should be carefully dated. Subsequent examinations should be on a separate card, which should be clamped to the original.

The results of the foregoing examination should determine the proper treatment, if any treatment is needed, and should determine the instructions that should be given the parents as to the need of seeking the advice of their family physician or of consulting a specialist. Also, the outcome of this examination would disclose the need, or not, of special physical exercises to correct beginning deformities. All children deemed able should then be taught by a physical teacher the physical culture exercises deemed wise for children of this age; one hour a day of various exercises under instruction as classes, and another hour in the school playground. The physical teacher should devote two or more hours a day teaching and treating children with physical defects.

All of this requires money, but to what better object could public money be devoted than to building up the physique of our children and to prevent future defectives and future disease?

At 8 years of age the child is physically and mentally ready for regular school work (not too many hours, or too much home study, as previously cautioned). Such children on growing up keep the habit of exercise, thus acquired, to their benefit, as they will live in the age of labor-saving devices and work that requires but little muscular effort.

Bad home food and bad home and house hygiene would be corrected as far as possible by the visiting nurse, who can be the trained nurse attached to each large public school. Again, all this costs money and seems ideal, but such an outlay would pay the community good dividends on the investment by raising healthy citizens and in preventing disease. Some of this cost could be offset by not appointing so many teachers of things that are not essential and devoting more time to the groundwork of education.

To repeat, it should be urged to push only the essential studies, and curtail or cut out non-essentials and trimmings. Later, both boys and girls, but the latter especially, should be instructed in bacteriology and physiology and hygiene. Much valuable information may be given by the picture method of illustrating the causes of disease, etc.

It is not advised to pauperize the people by developing or using too many unneeded free dispensaries. *Let all parents, unless they are positively unable, take their defective children to physicians, surgeons and dentists of their own selection.* Of course provision must be made for those children whose parents cannot pay for such services; but let the visiting nurse make this decision.

As the children grow older they should be taught how to walk, and dancing exercises of the supervised type might be a part of the physical culture.

When the child is 8 years of age and begins the regular school work, its mental condition should be noted, unless it has been previously declared "feeble-minded." Those who are "feeble-minded" should be segregated and taught separately from the bright children, and an entirely different course and entirely different future plans of educational work should be outlined for such children, distinct from the regular course of instruction for the normal children.

It is an economic mistake not to separate mentally defective children from normal children. Three years ago it was estimated that there were three million children in the United States repeating a school grade a second, third, or even a fourth time at a cost of a hundred million dollars annually to the country, a needless and wasteful expense.[2] It is declared that the mental capacity of an idiot at any age does not exceed that of a child of 2 years; that of an imbecile of any age does not exceed that of a normal child of 8; and that of a feeble-minded person of any age may range from the normal mental capacity of a child from 8 to 13, but never exceeds the 13-year limit. These figures emphasize the necessity of the segregation of feeble-minded children, and also the crime of punishing for indifference or delinquency these children, who are doing all they can do.

The frequency of the physical examinations must, of course, depend on the findings in each case. Defective children should be examined, at least as to the condition of the defect first found, once in three, six or twelve months, depending on the kind of defect. The results, for instance in adenoid or anemic children, should be certified to by the trained nurse on the reverse side of the child's card; that is, whether or not operation has been done in the one case, or whether the child is improved or otherwise in the other case, the child, supposedly, being under the care of the family surgeon or physician.

All of this is paternalism, but only thus is the good of the greatest number accomplished, and no person should be allowed to cause himself to become a tax on the community, to spread disease, or to break well-known laws of health and hygiene.

As the child grows older, as suggested above, he should be taught general hygiene, the laws of con-

2. Report of Committee on Medical Inspection of Schools, THE JOURNAL A. M. A., Nov. 25, 1911, p. 1753.

tagion, and the ordinary methods of communicating each disease, and simple rules of prevention. Simple anatomy and simple physiology, and the simplest kind of life problems should be taught in public schools. Sex hygiene should not be taught to mixed classes or much in mixed schools. The girls, at or before maturing age, should be instructed in such hygiene individually, not in classes, by the trained nurse. The boys may be talked to by the principal of the school in small groups confidentially, not from the platform.

It is necessary to urge the foregoing physical examination because of the twenty million children attending public schools in the United States only about two-fifths have more or less efficient school inspection and only a very few have medical examinations, and the muscle strength and physical development of our people is said to be deteriorating.

It should be urged that good able physical instructors must be obtained, or serious mistakes are liable to be made. After 10 years of age it is very doubtful if the games and exercises played or taken by boys should be as strenuous for girls; but it has been shown by some careful observers that girls are not harmed by ordinary exercises while menstruating. In fact, it is a serious error for a girl or her mother to believe that she must be an invalid for one or two days every time she menstruates, and a young ladies' seminary that puts each girl to bed for a day at each menstrual epoch does a serious mental injury to the girls. On the other hand, it is not advisable to cause these growing, maturing girls to climb stairs all day in a schoolhouse.

Chronically nervous children, and certainly the epileptics, should be sent home until cured (if cure is possible), or given an entirely different kind of schooling, away from large numbers and the shame caused by the publicity of their defects. Open-window or outdoor schools with small numbers of pupils and individual teaching, and scientific medical psychopathic decision of the best management to overcome such nervous defects as stage fright, stammering, weeping, brain storms, etc., should be the course followed with such children. The regular teachers, underpaid and overworked, should not be made responsible for the instruction or welfare of these children.

The only treatment for developed chorea is rest in bed; if the case is not severe, open air treatment in the country or at the seashore is essential, best where it is warm, and where the child can be under the care of one well-balanced person. Books, and playing with other children should generally not be allowed. Parenthetically, it might be mentioned that rheumatic germs should be suspected, and all disease from tonsils, adenoids, teeth and gums eradicated.

Mental fatigue (with good judgment as to hours of confinement and study and of intermittent play and exercise periods) should rarely occur, except in the nervous or neuropathic or otherwise diseased child. Precociousness and the morbid desire to overstudy is a sign of mental unhealth, and such children should be restricted in their book work and be compelled to do more physical work. If such management is not successful, they should be treated as psychopathic and as nervous children.

It may be briefly suggested here that adenoids, which are so frequent in young children, tend to shrink by the age of 14 or 15; but the teacher may readily observe, without medical examination, that a child is a mouth breather, looks dull and stupid, that there is beginning deafness, that the speech is imperfect, and that the chest expansion is incomplete. Mouth breathing interferes with the growth of the face and nose.

About 1 per cent. of children have discharging ears, and such ears may carry infection. Hence both for the child's sake and for the sake of others a discharging ear should be treated by an expert.

Eye-strain is of frequent occurrence in children, and headaches, granular lids, twitching of the lid muscles, and disturbances due to imperfect eyesight should be ever watched for by the teacher. Much absence from school, much loss of appetite, much nervousness, and much inability to study properly and advance are due to eye defects, a large proportion of which may be corrected.

(*To be continued*)

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SATURDAY, NOVEMBER 28, 1914

RUBBER AS A SOURCE OF HYGIENIC DANGER

Every physician is necessarily interested in the chemistry of rubber because this is one of the materials which enter into numerous articles and devices daily applied in medical and surgical practice. Experience teaches the unlike qualities of different types or brands of rubber. Some of them retain their original elasticity for a long time under the imposed conditions of usage, while others speedily deteriorate into brittle and useless scrap despite the various precautions of preservation that are embodied in familiar directions. The economic aspect of the quality of rubber goods offered for sale to the medical profession is an important one, because the expenditures in this department of the physician's equipment as well as of the supplies for the sick room and hospital are not inconsiderable.

The time is arriving when the purchaser of rubber will demand some reliable information as to the quality of the product which he is paying for. Rare, indeed, is the person at the present time who has any idea whatever of the make-up of rubber. Pure india-rubber, or caoutchouc, in its natural state is entirely unsuited for commercial use. It is soft and sticky, and readily undergoes spontaneous oxidation to a hard, brittle resinous substance. By vulcanization, a process in which mixtures of the crude gum with sulphur, or metallic sulphids or oxids are heated, a rubber is formed which is more permanently elastic and less subject to spontaneous change. The simplest type of vulcanized rubber, such as would be obtained from a properly heated mixture of sulphur and pure gum, is quite soft and offers little resistance to ordinary rough usage. Rubber of tougher qualities, but with lower elastic limits, is produced by the addition of metallic oxids, such as those of lead and of zinc, to the other ingredients before vulcanization. Among other constituents added to give required characteristics are the various pigments which furnish the color, Venetian red (iron oxid), ultramarine, lampblack and various organic dyes being among the ingredients which are employed.

A recent government report[1] calls attention to the fact that a large number of additional materials are used in rubber compounding simply to reduce the cost of the product. Among these may be mentioned whiting (calcium carbonate), barytes (barium sulphate), clay and various rubber substitutes, such as artificial rubber, oils and tar products. Finally, so-called recovered rubber, or shoddy, is used to a large extent in rubber compounds, resulting in a varying and generally unknown composition of the mineral constituents of the finished product. It is further stated that antimony sulphid can replace the sulphur, wholly or in part, in a simple vulcanized rubber, the resulting product being a brilliantly colored terra-cotta rubber. As the metallic base also gives a certain toughness and durability to the product, the use of antimony sulphid in place of sulphur was formerly considered highly desirable in the production of a rubber having wearing qualities. Despite the fact that even better wearing qualities can now be obtained by the use of other metallic compounds, especially zinc oxid, red rubber is still popularly regarded as a superior product. This in turn has led to the artificial coloring of ordinary rubber by the use of other compounds, such as iron oxid and organic coloring matter, so that one may find on the market many varieties of red rubber that are free from antimony.

In the case of most articles of rubber the existence of filling materials, pigments, etc., has no hygienic import. Cost and durability are the chief concern of the purchaser. The use of various heavy metals in the manufacture of nursing-nipples and small rubber toys affords an instance of a possible unsuspected danger to the health of infants, who tend to extract soluble products from such articles in the mouth or by the gastric juice when small pieces of the rubber are accidentally swallowed. Obviously they should be free from soluble toxic substances.

The Public Health Service has lately published information respecting the general characteristics of rubber used in nipples and toys with special reference to the use of heavy metals and to the presence of residual acidity in the compound. All specimens examined contained both iron and aluminum in considerable quantities. This indicates a rather general use of clay as a filling material. In the red rubbers either zinc oxid or magnesia was used in addition, while in the black rubbers two samples contained zinc oxid and three samples contained barytes. Antimony was found in four cases out of seven among the black rubbers and in five cases out of eight among the red rubbers. The three remaining specimens of red rubber were colored with Venetian red. The white rubber toys contained clay and zinc oxid, and one of them contained barytes. No traces of arsenic, lead or mercury were found in any of the samples examined.

1. Phelps, E. B., and Stevenson, A. F.: The Chemical Composition of Rubber Used in Nursing-Nipples and in Some Rubber Toys, Hyg. Lab. Bull. 96, U. S. P. H. S., 1914, p. 55.

The government chemists state that the occurrence of antimony in black rubber can be explained only on the hypothesis that rubber scrap or recovered rubber has been used in the compounding. We are told that the use of miscellaneous scrap, and especially of recovered rubber or shoddy, is objectionable because of its unknown chemical composition. The use of lead compounds in rubber preparations is common, and salts of mercury are used to some extent. Either of these metals would be highly objectionable in a compound to be used for nipples or children's toys.

A study of the solubility of the antimony found in rubber nipples—particularly of the red variety—was made under conditions approximating what might exist with infants. They showed an extraction of quantities of antimony of 20 per cent. of an emetic dose in normal saliva and of from 40 to 160 per cent. of an emetic dose in saliva of an acidity commonly found in an infant's mouth. It is apparent, therefore, without further discussion of the possibilities of a cumulative action of slight dosings resulting from the absorption of small amounts of antimony over a considerable period of time, that the use of antimony rubber in nursing-nipples, teething-rings and other rubber materials used by young infants is at least undesirable.

There are certain specifications which determine the general hygienic properties of rubber nipples in respect to ease of cleansing. With regard to the composition of these and other rubber articles which are given to young children the government report concludes: The articles should be made of a good grade of black rubber, free from shoddy and from antimony, lead, arsenic and mercury. Of the fillers commonly employed, magnesia, zinc oxid and clay are less undesirable, and barytes is probably without harmful influence. There can be no objection to a red rubber colored with iron oxid, although the advantages of such a compound will probably not compensate for the disadvantages of its being confused with antimony rubber.

CHANGES IN THE ADRENAL GLAND IN DISEASE

The large amount of discussion regarding the structure and function of the adrenal glands and the rôle they play in various diseases has given rise, on the whole, to conclusions which have been rather contradictory. According to Elliott,[1] the normal amount of epinephrin in the glands as estimated by various observers has been too low, owing either to faulty technic or to failure to take into account the rapid post-mortem loss of the substance. Usually this loss amounts to from 10 to 15 per cent. in eighteen hours, a considerable factor which must be taken into account in drawing conclusions from post-mortem material. The adrenal of a normal adult man should weigh from 4 to 5 gm. and should contain from 4 to 5 mg. of epinephrin. Conditions of fright, anesthesia, cerebral injury, bacterial intoxications, etc., have been found to exhaust the store of epinephrin in animals through the action of the splanchnic nerves, and it is fair to assume that these conditions probably produce a similar effect in man, so that any disease complicated with such conditions should show loss of epinephrin. In infectious diseases such as malignant endocarditis, pneumonia and all acute infections in general, the residual amount of epinephrin in the gland was found by Elliott to be considerably lessened, but apparently not enough in any case to endanger the circulation. The greatest loss was found in cases of afebrile, acute cardiac failure associated with great mental distress in the struggle for life. Simple cardiac failure without emotional disturbances, on the other hand, seems to produce very little loss of epinephrin.

The belief held by many that certain diseases with high blood-pressure are associated with hypertrophy of the medullary substance of the adrenal is not substantiated by Elliott. Obviously it would be difficult to measure the size of the medulla and the amount of epinephrin in the gland and circulation accurately enough to determine whether or not there is an increase in the amount of epinephrin. But if in a chronic case of high blood-pressure with renal disease, the patient dies from simple uremic intoxication without secondary infections and circulatory failure, without the adrenals being hypertrophied and without accumulation of epinephrin, we may then conclude that medullary hypertrophy is not a chief factor in the disease. In Elliott's work the glands examined in this condition did not show any enlargement which could not be ascribed to cortical adenoma or edema. In fact, there is no proof that the store of epinephrin is increased in any disease.

As a rule, changes in the medulla of the gland are slight if any; changes are common in the cortex, adenomatous growths of cortical substance being often found as, also, are changes in the amount of cortical lipoid. Under normal conditions the lipoid is stored in the form of doubly refractive granules, and when for any reason the cortical substance is diminished, the granules become smaller and finally disappear. These cortical lipoids are stored and lost under conditions entirely different from those which govern the other fats of the body. In persons dying from diseases with extreme emaciation, from starvation, such as is seen in anorexia nervosa or chronic tuberculosis without acute febrile reaction, in which the body fat is completely exhausted, there is little or no loss of cortical lipoids. In acute infections the cortical lipoids vanish rapidly. In Elliott's series of cases, pneumonia produced the most rapid and complete exhaustion. Scarlet fever, measles, malignant endocarditis and acute febrile tuberculosis also produced great loss, but not so complete as pneumonia. In

1. Elliott, T. R.: Pathological Changes in the Adrenal Glands, Quar. Jour. Med., 1914, viii, No. 29.

various septic infections the amount of loss depended on the severity of the infection, but was considerable in all cases. Diphtheria, being a disease of great toxicity and little febrile reaction, produced little loss of cortical fat. Also, a case of cerebral compression, in which there was a postoperative non-septic fever to 107 F. for long periods of time, resulted in no loss of cortical fat. On the other hand, chronic renal disease is often associated with cortical adenoma and hypertrophy. In this disease there is a tendency for cortical fats to appear in excess, especially in conjunction with arteriosclerosis. In these conditions, however, no definite relations can be said to exist, so that we cannot say that arteriosclerosis is caused by cortical hypertrophy. It is of importance, too, that according to Kolisko[2] constant changes are found in the adrenals in deaths from burns. There may be more or less extensive hemorrhagic infarction in acute cases, and when death occurs later, marked hyperemia with great reduction of lipoids. Possibly these changes stand in direct relation to the cause of death in burns, concerning which there are various views. It would be of interest to learn something in regard to the content of epinephrin in the adrenals in burns.

The observations cited indicate the need of further work in the hope that the relationship of the structural and chemical changes in the adrenals in various morbid conditions to the general physiologic disturbances may be made clear.

2. Kolisko: Vrtljahresschr. f. gerichl. Med., 1914, xlvii.

THE PALPATION OF ARTERIES

By palpation, writes Osler in connection with the diagnosis of arteriosclerosis, we are enabled to judge with fair accuracy the degree of thickening of the vessel wall. It requires not only experience, but also education, to form a correct judgment on the state of the arteries. A perfectly normal vessel, when contracted, may feel hard and cord-like. On the other hand, in a radial definitely thickened, but in a state of extreme relaxation, the hardening of the walls may escape detection. The state of the tissues about the artery, the amount of fat in the skin, the size and fulness of the veins—all have to be considered. One of the commonest of mistakes is to regard as thickened any vessel one can roll under the finger. But in a state of very high tension and if very full, the arterial tube may feel cord-like. To estimate the presence of sclerosis it is not sufficient to examine the radials and temporals.[1]

It is as difficult at times, as it is important, to recognize the difference between the hard sensation conveyed to the finger by a high-tension pulse and that conveyed by stiffening of the arterial walls. The two may even coexist. If the palpation of the arteries is to reach the dignity of an accurate aid to diagnosis, it becomes necessary to be able to correlate the tactile impressions of the physician with the true anatomic and functional conditions of the vessels he is examining. A few competent investigators have actually compared the subjective impressions gained by palpation of the radial arteries with the structural conditions revealed in the same vessels on examination post mortem. The conclusions are far from concordant in respect to the sufficiency of the judgment of the respective observers. One group has gained the distinct impression that the palpability of the vessels actually depends on the relative thickening of the arterial wall, the thickening of the intima preponderating over the hypertrophy of the media. Another group of clinicians has reached an utterly skeptical conclusion. They have compared the histologic picture of the vessels examined with the recorded judgment of the clinician who previously examined them by palpation. Many of the arteries which felt at most only slightly rigid showed marked sclerosis of the intima; others, in turn, which exhibited pronounced rigidity on skilful palpation were free from significant histologic changes. There is no question as to the competence of the observers in these different cases; they rank among the leaders in American and European medicine. The impartial judge has inevitably been constrained to the tentative conclusion that the strength of the middle coat of the arteries and the varying conditions of tonus of the arterial musculature must be of some moment in the palpation of blood-vessels.

The skepticism awakened by careful investigations is, indeed, justified by a very careful study just published from Romberg's clinic in Munich and conducted under the guidance of Schlayer. This work of Landé[2]—a comparison of Romberg's judgment of the living subject with the actual anatomic finding after death—shows that in a very considerable number of cases of apparently rigid arteries the histologic picture furnishes no explanation for the estimated rigidity. These discrepancies, which may also involve the reverse situation of sclerotic vessels that go unrecognized by the touch of trained clinicians, are not merely occasional. At least half of the records collected in considerable number involved irreconcilable features. They lead to the conclusion that so simple a clinical fact as the rigidity of arteries is by no means correlated with equally simple anatomic and functional conditions of the vessels palpated.

In the actually sclerotic arteries, as Landé notes, the increase in rigidity is brought about by the alteration of the particular tissue portion which is most called into play functionally by the type of vessel concerned. In highly muscular arteries the smooth musculature of the media undergoes degenerative change; in the more elastic vessels it means the replacement of the

1. Osler, W.: Modern Medicine, 1908, iv, 443.

2. Landé, Lotte: Ueber die Palpabilität der Arterien, Deutsch. Arch. f. klin. Med., 1914, cxvi, 295.

more elastic fibers by less responsive connective tissue. Nevertheless, despite these unlikenesses in acquired pathologic structure, the palpable effect—the arterial rigidity—is essentially the same. For the other cases of rigidity, when an anatomic exhibition of typical sclerosis is lacking, the explanation is not easy. In some, such as the arteries associated with contracted kidneys, there may be an increase in the entire thickness or volume of the vessel wall; in still others, the cause of the palpation results is not evident. The comparison of post-mortem facts with ante-mortem clinical judgments has long been one of the best and surest ways of bringing progress into the field of diagnosis. We need more of it.

EMBOLISM AND THROMBOSIS OF THE MESENTERIC VESSELS

Occlusion of the mesenteric vessels is regarded generally as a very uncommon condition. It occurs often enough, however, to require consideration whenever obscure, acute abdominal lesions are subjected to thorough examination with a view to accurate diagnosis and proper treatment. That it is not in any sense an extremely rare disease is shown by the fact that recently Trotter[1] collected no less than 366 cases, seven being original, from the careful study of which he has been able to draw some valuable conclusions. It appears that the disease rarely affects children, adults between 30 and 70 years being most liable to be attacked, and men nearly twice as often as women. The occlusion may involve the arteries (53 per cent.), the veins (41 per cent.), or both together (about 6 per cent.). The superior mesenteric vessels appear to be involved much more frequently than the inferior. In 64 per cent. of the cases considered by Trotter, the result was hemorrhagic infarction of the intestine. Anemic infarction occurred in 2.7 per cent. When typical infarction was absent, extreme engorgement, ulceration or perforation were observed in the area corresponding to the occluded vessels. The most common cause of arterial occlusion appears to be embolism, originating in most cases from acute or chronic endocarditic changes, and less frequently from thrombi in the aorta or heart. Occasionally, however, occlusion results from thrombosis due to chronic, sclerotic changes in the mesenteric artery or in the aorta. Occlusion of the mesenteric vein is due to thrombosis, usually a downward extension of thrombosis in the portal vein, but occasionally arising in the mesenteric vein itself as a result of an inflammatory process in the appendix or in the pelvis in the case of women.

The most striking clinical manifestations of mesenteric occlusion are sudden onset, acute abdominal pain, vomiting and diarrhea, the stools and vomit not uncommonly containing blood, the stools sometimes a great deal. In some cases constipation is present. Usually shock is severe with rapid and irregular, small pulse and normal or subnormal temperature which soon rises above normal. The abdomen becomes distended. In a few cases the hemorrhage between the mesenteric layers has been felt as a swelling through the abdominal wall. Visible peristalsis is rare. In Trotter's series peritonitis was present in at least 28 per cent. of the cases. When large or medium-sized vessels are occluded, death practically always results in a few days unless operation is made at an early stage.

That the clinical diagnosis of mesenteric occlusion is difficult is indicated by the circumstance that in Trotter's series it appears to have been made in only thirteen cases. The presence of endocarditis and of embolic manifestations elsewhere are valuable guides to diagnosis in cases presenting acute colicky abdominal pain, profuse bloody diarrhea, or constipation, vomiting, abdominal distention and grave constitutional disturbances. One difficulty is that the clinical picture is extremely variable, often incomplete; but if the idea that mesenteric vascular occlusion is a very uncommon condition could be forgotten, so that the possibility of its being present would be considered when the diagnosis of an acute abdominal lesion is under discussion, it no doubt would be diagnosed oftener. The cases in which operation with resection has been made appear to give 36.2 per cent. of recoveries. It would seem that if operation were made as soon as possible after the onset of acute symptoms, better results would be obtained.

1. Trotter, Leslie C. B.: Embolism and Thrombosis of the Mesenteric Vessels, Cambridge, 1913.

THE DISTRIBUTION OF IODIN

Although iodin and products containing it have long belonged to the armamentarium of medical practice, a unique interest in the element was aroused by the discovery by Baumann, in 1895, of its presence in the thyroid gland. There has been no lack of speculation as to the significance of this and the literature is full of conflicting statements as to the possible part that iodin may play in the animal economy. With the accumulation of reliable facts regarding the distribution of iodin in nature it seems more and more probable that its appearance in special tissues, notably the thyroid, in comparatively greater abundance than elsewhere, is not a mere accident.

Undoubtedly the true biologic significance of iodin will become more and more elucidated when our knowledge of its distribution in living forms has been extended far more widely than at present. To Dr. Cameron of the University of Manitoba at Winnipeg, we owe an important contribution involving many laborious estimations of iodin in all sorts of animal and plant tissues.[1] Facts thus collected are important

1. Cameron, A. T.: Contributions to the Biochemistry of Iodin. I. The Distribution of Iodin in Plant and Animal Tissues, Jour. Biol. Chem., 1914, xviii, 335.

in indicating not only the possible sources for the commercial preparation of the element, but also the sources from which it can find its way into the animal organism. It has long been known that iodin is present in almost all sea-weeds; indeed, it was discovered in kelp by Courtois in 1811. It now appears to be an invariable constituent of all marine algae in amounts greater than 0.001 per cent. Distinct variation of iodin content can occur in the same species, growing under almost the same conditions, and in different, but closely related species. No satisfactory cause has yet been assigned to explain such differences. The marked difference between fresh-water plants and the ordinary vegetables, on the one hand, and marine algae on the other is unquestionably due to difference in the iodin content of the environment, and therefore in the diet of these plants. The differences in different species growing under similar conditions, Cameron suggests, may be associated with a specific quantitative action of the plant in retaining iodin.

Iodin is present in appreciable quantities in certain tissues of all marine species. Cameron remarks that as we get higher in the scale there is more differentiation (and probably less total iodin in the whole organism) until in vertebrates, and particularly in mammals, thyroid tissue alone is of consequence in connection with the storage of the element. We are reminded that where there is a circulation of iodin in the organism, other tissues will also contain minute amounts; but the smallness of the figures obtained by Cameron and others indicates that the presence of iodin in such tissues is in all probability without significance. It is less than 0.001 per cent. in all non-thyroidal tissue.

Despite the marked variations of iodin content in thyroid tissue even in individuals of the same species —variations traceable to differences in diet—the element is an invariable constituent of normal tissue of this gland. The minimal quantity appears, according to Cameron, to be about 0.01 per cent., the maximal quantity approximating 1.16 per cent. Under normal conditions the diet always contains sufficient iodin for the upkeep of a minimal amount.

Natural Selection and Functional Selection.—Of course natural selection plays its part, as it must in all cases, even in the inorganic world, and I believe that in many cases, as for example in protective resemblance and mimicry, that part has been an extremely important one. But much more important than natural selection appears to me what Baldwin has termed "Functional Selection," selection by the organism itself, out of a number of possible reactions, of just those that are required to meet any emergency. As Baldwin puts it, "It is the organism which secures from all its overproduced movements those which are adaptive and beneficial." Natural selection is here replaced by intelligent selection, for I think we must agree with Jennings that we cannot make a distinction between the higher and the lower organisms in this respect, and that all purposive reactions, or adjustments, are essentially intelligent.—Arthur Dendy, *Medical Journal of Australia.*

Current Comment

SINGEING THE HAIR

The reams of paper that are used up each month in articles in the daily papers — and weekly and monthly papers — on beauty culture is conclusive evidence that it is as natural for man to desire to beautify the person as it is "to indulge in the illusions of hope." A sound mind in a sound body suffices the serious-minded minority, but apparently the innumerable majority, if they had their way, would have a comely body and take their chances on any old kind of a mind, on the principle that it is better to be good looking than wise, because more people have sight than understanding. To decorate and beautify the body is an inborn passion; the savage does it differently from us, but when it comes to the many manipulations and remedies that are recommended for avoiding wrinkles, giving the eyebrows an aristocratic arch, coaxing the lashes to be long and languorous, making the ears pink and small or the nose straight and thin, removing a double chin or taking the core out of the Adam's apple, we have nothing on our uncivilized and supposedly more ignorant brothers. The hair in particular is the object of all mankind's cosmetic endeavors. When it comes to civilized man he is universally engaged in trying to save what he has left or regrow what he has lost. Women, with few exceptions, do not become bald, but all women, in their opinions, are threatened with that unspeakable calamity; men not only may get bald, but a large number of them are already so. And thus the popular remedies for the hair need almost a Surgeon-General's catalog. Vibratory and electrical treatments, hair tonics that feed the hair roots, as though they grew out of the scalp like broom-sedge out of an old field, neat's-foot oil and crude kerosene, massage and mange cures, all have their futile trials. Among these our particular topic now is singeing the hair. This is recommended to overcome splitting at the ends and to prevent falling of the hair, the reason for the latter being that it "closes the pores and keeps the fluid in the hair." With the long hair of a woman which has a tendency to split at the ends, it is possible that singeing the tips may be of some use; it substitutes a charred blunt end of fused horn for one tapering to a point or cut clean across. But even in cases of this sort it is less useful than greasing lightly the hair and thus supplying the fat which is lacking in such hair. For the hair of men, which is kept short, singeing is not of any use in preventing splitting; hair which is not allowed to grow to its natural length does not split, unless it has a deep-seated disturbance for which there is no such simple remedy. Of course singeing the hair-ends in order to prevent the fluid in the hair from escaping, like sap from a tree, is based on an entire misconception of the hair's structure and nutrition. The hair does not contain any more sap than a buggy whip; it is not nourished by any fluid in it, but by the blood plasma that reaches only the hair root. The hair above the skin surface is a spine of horn, which is even oiled from without, and singeing its tips has no effect what-

cver on either its nourishment or its growth. It is certain that singeing the hair is of no value in preventing its fall; in fact the only value the procedure has is to the zealous hairdresser who gets his little fee for doing it — unless it is worth a quarter to the seeker after hair to think he is doing something, even if he is not.

CHLORIN-BLEACHED FLOUR

Since the bleaching of flour with the oxids of nitrogen has been forbidden in the United States under the Food and Drugs Act, there are signs of the introduction of other processes intended to produce similar changes in the wheat product. In one of these chlorin is the bleaching agent employed, the anhydrous gas being diluted with an inert gas and then used to "mature and whiten" the flour. Without commenting at this time on the legal aspects of the matter, we may fairly ask whether the new process confers any advantages on the cereal which will render it superior to the ordinary unbleached patent flour. Mere appearance need not be taken into consideration here. Experiments conducted in connection with the pure food work at the Kansas State Agricultural College[1] in Manhattan have shown that although the chlorin content of untreated flour may run as high as 576 parts per million, chlorin-treated flour will contain over 600 parts per million. Chlorin-treatment increases the acidity of the flour. The gluten tests run practically alike for the bleached and unbleached flour. The baking experts report that there are no differences in loaf volume; but the bleached flour gives a loaf having an objectionable color and texture. In nearly every case the bread made from the unbleached flour graded better. Evidently the chlorin-bleaching cannot be defended on the ground that bread-making qualities of the flour are improved.

GAME, STOCK AND CITIZENS

The epidemic of foot-and-mouth disease and its effect on the packing industry and the stock yards of Chicago have been commented on widely in the daily press from various points of view. One of the most illuminating comments appears in a recent issue of the Chicago *Journal* under the heading "Live Stock Versus Quail." Taking the best available estimates of the amount of live stock contained in the state and figuring on an average value of horses at $140 a head, milk cows at $65, other cows at $50, swine at $15, sheep at $6 and mules at $150 (minimum valuations, as most will admit), the *Journal* says the total value of live stock in Illinois would be $435,276,000, for the protection of which the state legislature appropriated for the current year a total of $37,340. By way of comparison, the *Journal* quotes the appropriation for the protection of fish and game for the same time, which amounts to $151,600. The *Journal* properly characterizes such a situation as "intolerable." It says, "To spend four times as much money protecting quail, ducks and prairie chickens as we spend in caring for one of the basic industries of the state is sheer communal lunacy." This is true. The farmers and business men of Illinois should see to it that every cent that is necessary to protect the live stock of the state is provided, no matter what economies may be necessary in other directions. But, if such appropriations are justified for the protection of the lives and health of animals, how much should be appropriated to protect the lives and health of the men, women and children of the state? Certainly more than for fish, game and live stock. Yet the appropriation for the protection of the 5,638,591 men, women and children in the state was for 1914 only $120,000, $30,000 less than was appropriated for the protection of fish and game. Are the lives of its citizens of less value to Illinois than the preservation of its quail and bass?

1. Utt, C. A. A.: Some Characteristics of Chlorine-Bleached Flour, Jour. Industrial and Engineering Chem., 1914, vi, 968.

VENOUS BLOOD-PRESSURE

Until quite recently it has been generally assumed that venous blood-pressure passively responds to changes in the peripheral resistance within the circulation and that it rises and falls inversely to the pressure in the arteries. There is now a growing belief, supported in part by experiments on both animals and man, that the pressure in the venous system may be dominated by a special nervous mechanism. We cannot review the entire story of this chapter of the physiology of the circulation which is still far from being presented in its final form. One apparent earlier obstacle to the hypothesis of a "venomotor" nervous mechanism has been in part met by the now well-established demonstration that the venous system is actually supplied with motor nerves. Only recently it has been shown that the veins may respond to epinephrin with constriction,[1] thereby furnishing one of the evidences nowadays accepted as indicative of sympathetic innervation. As a physiologist has expressed it,[2] although the evidence available at present is insufficient to establish definitely the existence of a venomotor system comparable to the vasomotor system proper, none of the evidence is against such a hypothetic nervous mechanism, and much of the data is impossible of explanation without such an assumption. It remains a fact, however, that no direct experimental proof has as yet been put forth. In distinction from the assumption that under normal conditions of life the peripheral resistance alone controls the magnitude of the venous pressure, Yandell Henderson has put forth the hypothesis that there is a venopressor mechanism which functions to maintain an optimum feeding pressure to the heart. This forms a part of his theory respecting the maintenance of the volume output of the heart.[3] The newest researches of Hooker,[2] at the Johns Hopkins Medical School, on the venous blood-pressure in man are in harmony with the existence of the hypothetic venomotor mechanism. He finds that normal venous pressure is independent of

1. Gunn and Chavasse: Proc. Roy. Soc. London, 1913, B, lxxxvi, 192.
2. Hooker, D. R.: Observations on the Venous Blood-Pressure in Man, Am. Jour. Physiol., 1914, xxxv, 73.
3. Henderson, Y., and Barringer, T. B.: Am. Jour. Physiol., 1913, xxxi, 352

changes in peripheral arterial resistance. The capacity of a vein may vary without affecting the internal pressure. According to Hooker, the venous pressure in man exhibits a distinct diurnal rhythm, rising throughout the day from 10 cm. to 20 cm. and falling again during the night. The normal venous pressure varies very considerably, averaging in the day time and under usual conditions about 15 cm. of water; in sleep, at night, it may fall to 7 or 8 cm. The study of venous pressure in man has been comparatively neglected in the past. With a renewal of interest in its problems we may look forward to some valuable contributions to the knowledge of the circulation.

THE COST OF TUBERCULOSIS AND TYPHOID

Estimates regarding the loss caused by preventable diseases are always interesting, although necessarily general. The smaller the area affected, the more accurate are the figures apt to be. Prof. Irving Fisher's estimate, in his report on national vitality, of the economic loss for the entire country at one and one-half billions a year is familiar to students of public health conditions. An estimate recently issued by the Minnesota State Board of Health shows the economic loss from death from typhoid fever in Minnesota in the last six years to be $21,958,940, while the deaths from tuberculosis are six times as great and the loss three times as great as that from typhoid, or $66,583,320, making a total loss from the two diseases alone of $88,542,260 for six years, or an annual loss of $14,757,043. In making this estimate the following economic values were used in computing the financial loss from deaths: professional business men and farmers, $500; skilled laborers, $300; unskilled laborers and domestics, $200; married women, $200; children under 15 years of age, $100. These valuations are conservative and should represent the minimum rather than the maximum loss.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Change in State Hospital Head.—Dr. James L. Greene has resigned as superintendent of the State Hospital for Nervous Diseases, Little Rock, and has been succeeded by Dr. Frank B. Young, Springdale, secretary of the State Board of Health, who will take charge of the institution November 30.

Free Clinic Established.—The first of the semi-weekly series of clinical lectures and examinations was held October 23, in the laboratory of the University of Arkansas, Little Rock. The clinic is maintained by the Pulaski County Anti-Tuberculosis Society. On Tuesday morning, white patients will be seen and on Friday morning negro patients will receive care.

Hospital Opened.—The Leo N. Levi Memorial Hospital, Hot Springs, made possible by the generosity of the late Leo N. Levi, was opened for the inspection of the public, November 1. The medical board of the institution is composed of Dr. William V. Laws, chairman; Dr. William H. Deaderick, secretary; and Drs. James C. Minor, Orvis E. Biggs and Samuel D. Weil.

New Medical Society Organized.—The South Nevada Medical Society composed of physicians residing in the southern portion of the county and the Nevada County Medical Society whose membership is made up of physicians residing in the northern portion of the county, met in Prescott, October 20, and perfected an organization to be known as the Nevada County Medical Society.——Dr. Thomas J. Mendenhall, Rosston, was elected president and Dr. William M. Garner, Bodcaw, secretary.

CONNECTICUT

Personal.—Dr. Harry St. John Williams has resigned as assistant superintendent of the Undercliffe Sanatorium, Meriden, to become superintendent of the Samuel L. Towne Memorial Hospital, Poughkeepsie, N. Y. Dr. Williams has been succeeded by Dr. Edward J. Degman, Southington.

The Brady Laboratory.—Plans are practically completed for the construction of the Anthony N. Brady Memorial Laboratory of the Yale Medical School. The laboratory and administration building will be erected early in the spring of 1915. The plans call for a three-story and basement building.

Tuberculosis Commissioner Appreciated.—The Bridgeport Employees Tuberculosis Relief Association of Bridgeport has presented John F. Gunshanan, Hartford, former tuberculosis commissioner of Connecticut, with a set of handsomely engrossed resolutions appropriately framed and setting forth the appreciation of the services of Mr. Gunshanan to the organization.

FLORIDA

New Board Member.—Dr. James Burnie Griffin, St. Augustine, has been appointed a member of the State Board of Homeopathic Medical Examiners, succeeding the late Dr. Henry R. Stout, Jacksonville.

Open Meeting of Medical Society.—On November 24, the Escambia County Medical Society held a public session at which the subjects for discussion were bubonic plague, mosquitoes, uses of the state laboratory, tuberculosis, medical inspection in schools and the cancer problem.

ILLINOIS

Personal.—Dr. Pierce Tyrrell, the oldest practitioner of Elgin, is reported to be critically ill.——Dr. George D. Hauberg, Moline, has been appointed official deputy coroner of Rock Island County.

New Tuberculosis Hospital.—A hospital to be used exclusively for tuberculosis patients is to be erected at Collinsville by Dr. Moses W. Harrison, who now conducts a private hospital and tuberculosis colony at that place.——The city commission of Danville has inspected a 2½-acre tract at that place with the view to its purchase as a site for its municipal tuberculosis sanatorium.

Proposed Buildings for Epileptic Colony.—Plans for the buildings for the State Colony for Epileptics, Dixon, have been prepared and bids for their construction have been asked for. The buildings consist of an administration building with three wings; dining halls and a service kitchen and a dormitory building to accommodate 52 persons. The dormitory cottages are to be built in groups of four around the main buildings.

Chicago

Red Cross Christmas Seals.—The sale of Red Cross seals opens in Chicago at stores, theaters, public buildings, etc., Monday, November 30. Each seal costs one cent. Remittances may be sent direct to the Chicago Tuberculosis Institute, Room 1212, Hartford Building, 8 South Dearborn Street.

Chicago Hall of Fame.—A hall of fame to commemorate the achievements of the citizens of Chicago is proposed as an adjunct to the sunken gardens which the city will place in Grant Park. The request of the Chicago Medical Society for permission to erect a $25,000 memorial to Dr. Nicholas Senn is believed to have led to this suggestion.

Health Department to Open School.—The Chicago School of Sanitary Instruction is soon to be opened by the health department. A course of instruction will be given to superintendents of milk plants consisting of lectures and demonstrations on the general principles of milk hygiene. All new employees of the health department will be obliged to take a six months' course of training. Students of medical schools in Chicago will be given instructions in public health work during the winter. In connection with the school the health

department will supply speakers on health work to clubs and other organizations.

INDIANA

New Dispensary.—A free medical dispensary was opened at the Campbell Settlement House, Gary, November 16. The dispensary is open each afternoon from 1 to 2 o'clock.

Fatal Epidemic Among Rabbits.—A disease said to have caused the death of thousands of rabbits near Vevay, Switzerland County, is being investigated by the chief food inspector of Cincinnati. It is said that many shipments of rabbits have been made to the markets of Cincinnati and other cities since the outbreak of the epidemic.

Legal Question Delays Bond Issue.—An agreement by the Marion County Council, November 12, to authorize a bond issue of $80,000, the proceeds to be applied to a new county tuberculosis sanatorium, has been deferred on account of a legal question as to the date on which the council which has had charge of the appropriations and bond authorization, was succeeded by the new city council.

Personal.—Dr. John W. Sluss, superintendent of the Indianapolis City Hospital, has resigned and has been succeeded by Dr. Thomas L. Sullivan, Jr.——Dr. Raymond H. Stinger, Broad Ripple, has been appointed a member of the staff of the Southeastern Hospital for the Insane, Madison.——Dr. A. Golding Chittick, Frankfort, has been recommissioned as Captain, M. C., Ind., N. G., and reassigned to the command of Field Hospital No. 1, Frankfort.——Dr. Richard A. Poole, Indianapolis, has been elected coroner of Marion County.——The office and residence of Dr. Edwin L. Sigmon, New Albany, was destroyed by fire, November 6.——A reception was given by Dr. Anna I. McKamy, New Albany, November 5, to the members of the Floyd County Medical Association in celebration of the opening of her new hospital for women.

IOWA

Trichina.—An appeal to the State Board of Health for aid has been made from New Liberty, Scott County, where thirty-five cases of trichina are reported.

Publication Office Changed.—The publication office of the *Iowa Medical Journal*, the official organ of the Iowa State Medical Society, is to be changed from Washington to Des Moines. Dr. David S. Fairchild, Clinton, is editor of the journal.

Health Exhibit Opened.—Dr. Guilford H. Sumner, secretary of the State Board of Health of Des Moines, opened the state health exhibit in that city, November 5. The exhibit includes the material which was secured and exhibited at the state fair in August. A lecture is delivered each evening by Prof. A. E. Kepford, state lecturer on tuberculosis.

LOUISIANA

Pediatrician Wins Suit.—In a recent suit tried at Shreveport, in which Dr. C. Pearl Munday claimed a fee of $1,000 for medical service rendered as a pediatrician to two infants and in which a counter charge of malpractice was made, the jury returned a verdict in favor of the physician for $665 and costs.

Personal.—Dr. Charles C. Bass, New Orleans, winner of the Southern Medical Association medal for scientific research, was awarded the medal for a third time at the annual meeting in Richmond, Va., November 12.——Dr. J. George Dempsey, New Orleans, has been nominated for president and Dr. George F. Patton, New Orleans, for secretary of the Louisiana Anti-Tuberculosis League.

MARYLAND

Personal.—Dr. Robert P. Bay, Baltimore, has been appointed chief medical examiner of the state industrial accident commission. To date 353 accidents have been reported to the commission since the workmen's compensation law went into effect on November 1.——Dr. Clapham P. King, Annapolis, has sailed with a Red Cross unit on the steamer *Finland* for duty in Servia.

Baltimore

Portrait Presented to Faculty.—A life-size protrait of Dr. Samuel Claggett Chew, dean of Baltimore physicians, former president of the Medical and Chirurgical Faculty of Maryland, member of the board of regents of the Maryland University for more than forty years, and one of the best known medical men in the country, was presented to the faculty November 19, by the medical profession of Maryland. The presentation was made by Dr. Charles W. Mitchell, who spoke of Dr. Chew, the teacher, and Dr. William S. Thayer, who told of Dr. Chew, the physician. Dr. Randolph Winslow, president of the faculty, accepted the portrait.

Health Work at Stake.—A cut of $135,000 has already been made in Dr. Nathan R. Gorter's estimate to the Board of Estimates for the annual appropriation for the City Health Department. The board eliminated $50,000 for a modern hospital building at Quarantine and $85,000 for improvements the Commissioner of Health considered necessary at Sydenham, the municipal hospital for minor infectious diseases. That the department may be put on a more effective basis next year, Dr. Gorter has asked for twenty-five additional employees, increasing his salary account by $9,250. He has also asked for an increase of $10,680 in his expense account. These items have not been passed on definitely by the Board of Estimates, but the statement is made at the city hall that they will probably be reduced.

Applicants Turned Away.—The number of applicants for admission to Johns Hopkins University Medical Department was much larger at the beginning of the present session than previously. More students were turned away than were accepted—not on account of their lack of technical entrance qualifications, but because of a lack of room. The enrolment of students is limited to ninety in each class.——In order that the best qualified students may be chosen, no applicants for admission are accepted after July 1 of each year, and all selections are made between that date and July 15. In this selection the college officials are guided by (a) the student's grades in the scientific branches at college; (b) a personal letter from one of the science teachers, setting forth the student's fitness to study medicine; and (c) the general character of the institution in which the student obtained his preliminary collegiate training.

MICHIGAN

Sanatorium Notes.—The opening exercises of the new Anna T. Dodge Children's Building of the Municipal Sanatorium, Detroit, will be held October 28 and 29, simultaneously with the celebration of tuberculosis day.——The State Sanatorium, Howell, will ask the legislature for an appropriation of $55,000 for maintenance during the next biennium; $15,000 for an infirmary and $12,000 for a children's pavilion. During the last year 376 patients were admitted for treatment and in more than 75 per cent. improvement took place.——The committee on ways and means of the Wayne County Sanatorium, Eloise, has voted to build an addition to the institution to cost $130,000.——At the annual meeting of the Michigan Association for the Prevention and Relief of Tuberculosis, at Muskegon last month, Dr. Arthur F. Fischer, Hancock, was elected president; Miss Carol F. Walton, Ann Arbor, secretary, and Dr. Henry J. Hartz, Detroit, treasurer; Drs. Walter H. Sawyer, Hillsdale; John H. Kellogg, Battle Creek; Edward T. Abrams, Hancock; Robert B. Harkness, Houghton, and Aldred S. Warthin, Ann Arbor, were elected directors, and Drs. Herman Ostrander, Kalamazoo; Collins H. Johnston, Grand Rapids; Victor C. Vaughan, Ann Arbor, and John H. Kellogg, Battle Creek, were elected medical members of the executive committee.

MINNESOTA

Sanatorium Notes.—Blue Earth County has voted to build a tuberculosis sanatorium.——Lac Qui Parle County has voted to join with Yellow Medicine, Chippewa and Renville counties to build a joint sanatorium.——Grant and Poke counties have voted to unite with Stevens and Douglas counties to build a sanatorium.——About thirty-five counties in the state will build sanatoriums within the next year.

County Tuberculosis Sanatoriums Authorized.—At the general election, November 3, four counties, Grant, Douglas, Lac Qui Parle and Blue Earth, voted to establish county tuberculosis sanatoriums. The legislature will be asked to make appropriations, in accordance with the county sanatorium law, for half the cost of construction and half the maintenance of patients unable to pay. There are now thirty-five counties which have taken action for county tuberculosis sanatoriums.

Health Week.—The program of the Minnesota Public Health Association for Health Week beginning with Tuberculosis Sunday, November 29, is as follows: Tuberculosis Sunday, November 29, with the suggestion that sermons on tuberculosis be preached in all churches, with union services to be held wherever they can be arranged and addresses be made by physicians or tuberculosis specialists wherever pos-

sible. The collections should go to local church or community antituberculosis work.——Measles Monday, November 30, to show the prevalence of measles, schoolchildren are asked to form "M's" and "O's" about 3 inches square, the "M" to be worn by those who have had measles and the "O" by those who have escaped.——Typhoid Tuesday, December 1, is to be devoted to the investigation of the water supply.——Whooping-Cough Wednesday, December 2, is to be devoted to showing the prevalence of whooping-cough. All schoolchildren who have had the whooping-cough will wear a "W" badge and all who have escaped an "O" badge. ——Children's Thursday, December 3, should be devoted by all mothers and fathers to a consideration of the sanitary condition of the dairies from which their milk is obtained. ——Fly-Day Friday, December 4, should be devoted to render houses and outhouses fly proof.——The week closes with Seal Day Saturday, December 5, and an especial effort is to be made on this day to sell Red Cross Christmas Seals.

NEW YORK

County Sanatorium Approved.—A proposition for a county tuberculosis sanatorium for Lewis County was carried at the November election by a majority of 700.

Jamestown Tests Milk Supply.—The secretary of the board of health of Jamestown has secured the equipment for a municipal bacteriological laboratory to meet the requirements of the new sanitary code.

Society Honors Its Dead.—The Albany County Medical Society held its annual memorial service October 30, in honor of the deceased members of the last year, Drs. Charles H. Smith, Daniel V. O'Leary and John V. Hennessy. Appropriate resolutions were adopted and fitting addresses were made by several members of the society.

County Tuberculosis Hospitals.—At the recent election three additional counties, Chenango, Lewis and Suffolk, voted to establish tuberculosis hospitals. There are now twenty-nine counties in the state which either have or have planned for such hospitals. It is also reported that Nassau County, L. I., finds that the vote in favor of a tuberculosis hospital near Hempstead, L. I., must stand in spite of the objections of residents in that neighborhood.

Alarming Spread of Foot-and-Mouth Disease.—While it is reported from Albany that the epidemic of foot-and-mouth disease through the upper part of the state is well under control, the state department of agriculture is alarmed over the spread of the disease on Long Island. The epidemic has attacked four additional herds of dairy cattle aggregating 733 milch cows. The state department of agriculture has appealed to the federal bureau of agriculture for additional help and a special appropriation will have to be made by the state to meet the emergency.

Reduction of Summer Infant Death-Rate Through the Establishment of Infant Welfare Stations.—The New York State Department of Health announces that the infant death-rate during the past summer, for the city of New York, fell to 100 (as against 112 in 1913) and for the rest of the state exclusive of the city, to 119 (as against 143 last year). The department attributes part of the reduction to the mild summer but remarks that it is probable that much of the improvement is due to the infant welfare exhibits and stations which were established during the past summer.

New York City

Milk Pasteurization Ordered.—The health department issued an order on November 13 that all milk hereafter sold in New York City must be pasteurized. The order is based principally on the epidemic of foot-and-mouth disease.

Dr. Byrne Still Lives.—In THE JOURNAL of September 19, the notice of the death of Dr. Joseph Henry Byrne, New York City, appeared. This report was published on information given by our local correspondent for New York City. Under date of November 13, Dr. Byrne writes us that he is "very much alive and capable of kicking strenuously," at which we, together with Dr. Byrne's many friends, rejoice.

Personal.—Dr. Haven Emerson, sanitary superintendent, and Dr. William H. Park, general director of laboratories in the New York Health Department, have received a raise of salary from $5,000 to $6,000 a year on the condition that they give their full time to the work, relinquishing their private practice and their college work in Columbia University.

Montefiore Home Report.—The annual meeting of the directors of the Montefiore Home and Hospital for Chronic Diseases was held November 8, when a gift of $25,000 was announced. The income of this fund is to be used for juvenile patients. During the past year the institution cared for 630 patients at a cost of $265,050 and there was a deficiency of $15,000.

Academy Celebrates Anniversary.—The anniversary meeting of the New York Academy of Medicine was held on the evening of November 19. Hon. George McAneny, president of the board of aldermen, made the address. It being the custom of the academy to emphasize its interest in public welfare on these occasions the speaker chose as his subject, "Some of the Relations of the Profession of Medicine to Municipal Government." The meeting was followed by a reception and a collation.

Two Red Cross Units for Servia.—Two more Red Cross units sailed on the *Finland*, November 21, for services in Servia. The directors of the units are Dr. Ethan Flagg Butler and Dr. Ernest P. Magruder of Washington, D. C. The staff physicians are Drs. James F. Donnelly, S. H. Dodge, Knoxville, Tenn.; Clapham P. King, Annapolis, and Morton Lane. The company will land at the Piraeus and proceed at once to Nish via Salonika. They carry 75 tons of material for dressings and other stores.

Experiment in Physical Examination of Schoolchildren.—In accordance with a suggestion made by the committee on hygiene of the board of education an experiment is being made in the private examination of schoolchildren. Two districts have been selected and the parents given the opportunity to have their children examined by their own physician before entering school for the first time. If it is found that such examinations are made in any considerable numbers the medical inspectors will employ the additional time thus saved to the examination of children in the upper grades, and if the experiment should prove a success, the system will be extended.

Attempt to Solve the Ventilation Problem.—Arrangements have been made for a series of scientific tests on sixty or more Bronx schoolchildren with the object in view of solving the problem of ventilation in the schools. These experiments are to be conducted by the State Commission on Ventilation, of which Prof. C. E. A. Winslow is chairman. Preliminary experiments have been under way for the past nine months at City College. The new school building in which these experiments are to be conducted has two schoolrooms fitted up with every conceivable ventilating appliance, and having double ceilings, walls and floors in order to provide inlets and outlets for air at any point. There are seats for about thirty children in each room. While the commission has not yet made its official report, it is understood that it has reached some conclusions that apparently upset some fresh-air theories of long standing.

NORTH CAROLINA

New Hospital Opened.—The Winston-Salem City Hospital was opened for visitors November 4, by a reception at which the building was formally presented to the city and accepted by the mayor. The institution represents an investment of more than $100,000. On November 11 the hospital was opened to receive patients.

Sanatorium Wins Suit.—At Charlotte on November 6, the jury in the superior court, in an accident for damages brought by a woman against the Charlotte Sanitarium on account of the occurrence of nephritis said to have been due to a careless administration of ether at a minor operation six years before, rendered a verdict in favor of the sanatorium.

Personal.—Dr. James N. Gill, Weaverville, has recovered from injuries received in an automobile accident near Asheville early this month.——The residence of Dr. L. S. Blade, Elizabeth City, was damaged by fire November 6.——Dr. Robert H. Bradford, Burgaw, who was operated on for appendicitis at the James Walker Memorial Hospital, Wilmington, is reported to be convalescent.

County Sanatorium Wanted.—An appeal has been made to the commissioners of Guilford County, Greensboro, November 4, to provide a hospital for incipient tuberculosis. The commissioners appointed a committee composed of representatives from the County Health Board and the County Medical Society to look over the situation and recommend what course should be adopted.

State Hospital Vindication.—The supreme court of the state has handed down a decision confirming the judgment of the lower courts in the case of Salisbury vs. The Hospital for the Insane, Raleigh. The evidence shows that a former governor had appointed the plaintiff in the action, a director

of the State Hospital by an interim appointment and at the meeting of the legislature the next governor designated another individual to fill the vacancy for which the appointment had been made, but not comfirmed by the Senate. The court sustained the appointment of the official director, taking the position that the governor, at the time of the initial appointment, could nominate only for an interval term pending the session of the Senate which would confirm or refuse to confirm the appointment.

OHIO

Union Meeting of District Societies.—At the union meeting of the First and Second Councilor Districts Medical Society held in Dayton, clinics were held at St. Elizabeth, Miami Valley and the Dayton State hospitals. Eminent specialists from Chicago, Cincinnati and Indianapolis conducted the clinics.

State Health Board Member Dead.—Mr. Josiah L. Hartzell, the oldest member of the State Board of Health, who was made a member in 1893, and was twice its president; one of the earliest advocates of modern sanitation in Ohio; formerly editor of *The Repository*; a member of the American Public Health Association, and one of the trustees of the Ohio Historical and Archeological Society; died at his home in Columbus, November 11, aged 81.

Personal.—Physicians of VanWert County attended a banquet in VanWert, November 12, in honor of Dr. J. Arthur Hines who celebrated his seventy-second birthday anniversary and the fiftieth anniversary of his initiation into practice. Dr. Hines was presented with a gold headed cane suitably engraved.——Dr. Louis L. Syman, Springfield, has been reelected superintendent of the medical department of the Detroit, Toledo and Ironton Railway.

OKLAHOMA

Insane Patients Transferred.—The State Insane Asylum at Norman recently transferred 250 inmates to the new State Hospital at Vinita. More than 800 patients still remain at Norman.

Foot-and-Mouth Disease.—Dr. John C. Mahr, Shawnee, state commissioner of health, has issued a warning regarding the possibility of the spread of foot-and-mouth disease to human beings.

Free Pasteur Treatment.—The state health commissioner, John C. Mahr, Shawnee, announces that he is prepared to furnish free, from health officers or physicians of the state, the Pasteur treatment for hydrophobia to all who are unable to pay for the treatment.

Personal.—Dr. James A. Young, Oklahoma, who fractured his leg recently, is reported to be convalescent.——The house of Dr. John H. Baldwin, Calera, was destroyed by fire recently.——Dr. Harry E. Breese, Henryetta, who has been ill with malaria and complications, has recovered.——Dr. James A. Rutledge, Woodville, recently fractured his leg while playing foot-ball.——Dr. Herman E. Yazel, Oklahoma City, has sailed for Europe in the Red Cross service.

TEXAS

New Texas Surgical Organization.—At the annual meeting of the Medical Association of the Southwest at Galveston recently a new society to be known as the Texas Surgical Association, was organized. The members of the executive committee are Drs. Joseph H. Reuss, Cuero; John T. Moore, Houston; John B. Smoot, Dallas; Frank Paschal, San Antonio; William B. Thorning, Houston; Joseph D. Becton, Greenville, and James E. Thompson, Galveston.

Report of State Hookworm Commission.—Dr. Morris H. Boerner, Austin, assistant state health officer and director of the state hookworm commission, in his quarterly report says that the field work during July, August and September in Burleson, Milan, Bell, Anderson and Nacogdoches counties covered over 4,800 square miles and reached directly and indirectly more than 100,000 persons. Over 6,000 persons were examined for hookworm of whom 1,225, or 19 per cent., were found to be infected and given free treatment. The disease was found to be much more prevalent among children than among adults. Over 3,000 children were examined and 960, or 31 per cent., were found infected.

GENERAL

Canal Zone Physician Resigns.—Dr. Walter G. F. Baetz has resigned as a member of the medical staff of the Ancon Hospital, Canal Zone, and will practice in New York City.

Life Insurance Medical Directors to Meet.—The semi-annual meeting of the medical section of the American Life Convention will be held at French Lick Springs, Ind., March 3-5, 1915. Dr. Frank W. Foxworthy is chairman of the program committee.

Southern Surgeons and Gynecologists to Meet.—The twenty-seventh annual meeting of the Southern Surgical and Gynecological Association will be held in Asheville, N. C., December 15 to 17, with headquarters at Grove Park Inn. Dr. John Wesley Long, Greensboro, is president of the association.

Southern Medical Women Elect Officers.—The second annual session of the Association of Medical Women was held in Richmond, Va., November 10, and the following officers were elected: president, Dr. Mary E. Lapham, Highlands, N. C.; vice-president, Dr. Mary A. Parsons, Washington, D. C.; secretary, Dr. L. Rosa H. Gantt, Spartanburg, S. C.

Orthopedic Club to Meet.—The next meeting of the Central States Orthopedic Club will be held in Detroit and Ann Arbor, Mich., December 28 and 29, under the presidency of Dr. Albert H. Freiberg, Cincinnati. The first day's meeting will be held in Detroit and in the evening the club will be the guest of the Detroit Medical Society. The second morning will be spent in the clinics and laboratories of the University of Michigan, Ann Arbor.

Good Health in the Army.—In the annual report of Surgeon-General William C. Gorgas it is announced that the hospital rate for the year was the lowest on record, that typhoid fever has been virtually stamped out, that there has been less alcoholism than at any time in the history of the Army and that in spite of the large number of men on duty in the tropics, the malarial fever rate is the lowest since 1898. Surgeon-General Gorgas especially commended the high hygienic standards maintained in camps.

Measures Against Importation of Disease Into This Country at the Close of the War.—The United States Public Health Service is making preparations to prevent the entrance of disease into this country at the close of the European war. American consuls in Europe have been instructed to report the appearance of epidemics immediately to the health service and particularly to watch for cholera. The Public Health Service also has representatives of its own abroad watching for manifestations of disease. The closest inspection of immigrants is to be maintained.

Progress in Legislation Against Child Labor.—The tenth annual report of the National Child Labor Committee compares the laws on this subject in 1904, when the committee was organized, with those of 1914. The number of states which impose a 14-year-age limit on all factory work has increased from thirteen in 1904 to fifty-six in 1914. In the same time the number of states having an eight-hour day for older children has increased from one to eighteen. Night work was prohibited for children under 16 in 1904 in five states, and in 1914, in thirty-four states. Factory inspection was provided for in thirteen states in 1904 and in thirty-four states in 1914.

Foot-and-Mouth Disease.—The federal quarantine against the foot-and-mouth disease has been extended to New Jersey, Rhode Island, Massachusetts, New York, Ohio, Pennsylvania, Indiana, Illinois, Maryland, Michigan, Wisconsin, Delaware and Iowa. Shipments of live stock from Canada to the United States are also forbidden. There is no evidence yet of foot-and-mouth disease in Canada, but it is intended to prevent the return of infected cars which have been sent over the border. State quarantine has also been declared against states not yet under federal quarantine. Suspected cases of infection of human beings are said to have occurred in Akron and Cleveland, Ohio; Berrien County, Mich.; Providence, R. I., and Anderson, Ind. The Rockefeller Institute for Medical Research through its director, Dr. Simon Flexner, has undertaken to investigate the cause of the disease.

Southwestern Physicians Elect Officers.—At the ninth annual meeting of the Medical Association of the Southwest held in Galveston, Tex., November 10 and 11, the following officers were elected; president, Dr. Jefferson D. Griffith, Kansas City, Mo.; vice-presidents, Drs. Ernest F. Day, Arkansas City, Kan.; Thomas H. Flesher, Edmond, Okla.; Arthur E. Sweatland, Nacogdoches, Tex., and Estill D. Holland, Hot Springs, Ark.; secretary-treasurer, Dr. Fred H. Clark, El Reno, Okla. (reelected for the tenth time), and executive committee, Drs. Matthew M. Smith, Dallas, Tex.;

John H. Barnes, Enid, Okla.; Jacob G. Dorsey, Wichita, Kan.; William H. Stauffer, St. Louis, and Edward H. Martin, Hot Springs, Ark. The association approved the adoption of the *Southwestern Journal of Medicine and Surgery* as the official organ of the association. Oklahoma City was selected as the next place of meeting and the secretary was directed to extend an invitation to the state medical bodies of Colorado, New Mexico and Louisiana to affiliate with the association.

National Economic Problems to be Discussed by the Civic Federation.—Among the national problems of medical interest to be discussed by the National Civic Federation at its fifteenth annual meeting in New York City, Dec. 3 to 5, 1914, will be that of food and drugs. The committee on plan and scope for the proposed department on food and drugs will report recommendations based on answers to a questionnaire sent out to over 5,000 federal, state and municipal drug, food and public health officials as well as to manufacturers and retail dealers. The questionnaire dealt with the conditions of the sale of meat, poultry, milk, eggs, pastry, drugs, etc., and included an inquiry as to proprietary remedies and the advisability of the adoption of an official standard of drugs to be supervised by the government. Among the topics discussed in the report of the welfare department also are several which have a medical bearing such as that on industrial fatigue, relation between hours of work and output and physical examination of new employees. In connection with this department, a permanent exhibit is to be established on the thirty-fifth floor of the Metropolitan Tower.

Southern Physicians Hold Meeting.—The eighth annual meeting of the Southern Medical Association was held in Richmond, Va., November 9 to 12, under the presidency of Dr. Stuart McGuire, Richmond, and the following officers were elected: president, Dr. Oscar Dowling, Shreveport, La.; vice-presidents, Drs. Robinson C. Dorr, Batesville, Ark., and McGuire Newton, Richmond, Va.; Dr. Allen W. Freeman, Richmond, Va., chairman; Dr. James A. Hayne, Columbia, S. C., vice-chairman; and Dr. Waller S. Leathers, University, Miss., secretary of the section of public health.——Dr. Joseph B. Greene, Ashville, N. C., chairman; Dr. Edward H. Cary, Dallas, Tex., vice-chairman, and Dr. Thomas W. Moore, Huntington, W. Va., secretary of the section on eye, ear, nose and throat.——Dr. Isidore Cohn, New Orleans, chairman; Dr. John H. Blackburn, Bowling Green, Ky., vice-chairman, and Dr. Franklin Webb Griffith, Asheville, N. C., secretary of the section on surgery.——Dr. William H. Deaderick, Hot Springs, Ark., chairman; Dr. Charles L. Minor, Asheville, N. C., vice-chairman, and Dr. Stewart R. Roberts, Atlanta, Ga., secretary of the section on medicine. Dallas, Tex., was selected as the next place of meeting.

United States Civil-Service Examination.—The United States Civil Service Commission announces an open competitive examination for epidemiologist, for men only. From the register of eligibles resulting from this examination certification will be made to fill a vacancy in this position in the Public Health Service for service in the field, at a salary of $4,000 a year, and vacancies as they may occur in positions requiring similar qualifications, unless it is found to be in the interest of the service to fill any vacancy by reinstatement, transfer or promotion.

The duties of the position will be to make laboratory and field investigations of the diseases of man in relation to prevalence, causation and methods of control, and to conduct field studies of public health matters. Competitors will not be assembled for examination, but will be rated on the following subjects, which will have the relative weights indicated: Education, 25; Experience and fitness, 50; Publications, 25.

Graduation with an A.B. or B.S. degree from a college or university of recognized standing, and graduation with an M.D. degree from a medical school of recognized standing, and at least five years' experience in epidemiologic research, including field studies and laboratory technic, and at least five years' public health service under federal, state or municipal authorities, are prerequisites for consideration for this position. Experience in epidemiologic research and experience in public health service may be concurrent. Applicants must have reached their twenty-fifth but not their fortieth birthday on the date of the examination. Persons who meet the requirements and desire this examination should at once apply for Forms 304 and 2095, stating the title of the examination for which the forms are desired, to the United States Civil Service Commission, Washington, D. C.

Prevention of Infant Mortality.—The fifth annual meeting of the American Association for Study and Prevention of Infant Mortality was held in Boston, November 12-14. At the close of the meeting Mr. Homer Folks of New York, who was elected a year ago, became president for 1915, succeeding Dr. J. Whitridge Williams of Baltimore, and the following officers were elected: president-elect, Dr. Samuel McC. Hamill, Philadelphia; vice-presidents, Drs. William C. Woodward, Washington, and William Palmer Lucas, San Francisco; secretary, Dr. Philip Van Ingen, New York; treasurer, Mr. Austin McLanahan, Baltimore; executive secretary, Miss Gertrude B. Knipp, Baltimore. The meeting was the largest in the history of the association. Delegates were present from eighteen states, the District of Columbia, Canada and Panama. Over 120 organizations engaged in baby-saving work are now identified with the association. Fifty-two of these were represented by delegates at the meeting. In connection with the meeting an interesting exhibit of local and national activities was held in the Boston Public Library. The selection of place and date for the 1915 meeting were left to the incoming executive committee.

The second day's session of the association was opened by the election of the following new directors: for five years, George R. Bedinger, Boston; Dr. Sara Josephine Baker, New York; Dr. Arthur B. Emmons, 2d, Boston; Dr. William W. Butterworth, New Orleans; Dr. Charles V. Chapin, Providence, R. I.; Dr. Frank S. Churchill, Chicago; Miss M. F. Etchberger, Baltimore; Dr. Charles L. Furbush, Philadelphia; Dr. Clyde E. Ford, Cleveland; Dr. Caroline Hedger, Chicago; Dr. William Palmer Lucas, San Francisco; Dr. Helen MacMurchy, Toronto; Harold McCormick, Chicago; Dr. Fred W. Schutz, Minneapolis; Dr. George M. Tuttle, St. Louis; Dr. Borden S. Veeder, St. Louis; Dr. William H. Welch, Baltimore; for four years, Dr. Howard C. Carpenter, Philadelphia; for three years, Dr. Watson S. Rankin, Raleigh, N. C., and Dr. Ernest C. Levy, Richmond, Va.; for two years, Dr. Carl L. Alsberg, Washington; for one year, Mrs. C. B. Crane, Kalamazoo, Mich.

FOREIGN

New University in Austria-Hungary.—Austria-Hungary has just founded a new university, the fifth in the empire. It is located at Presburg, in Hungary, about 40 miles east of Vienna. It was inaugurated with simple ceremonies, October 4.

Yellow Fever Suspects.—Two passengers on the steamer "*Esperanze*" from Progreso, Mex., which arrived at Havana, November 16, showed signs of yellow fever and were isolated for observation. Two cases of yellow fever are reported at Merida, Yucatan.

WAR NOTES

The American Ambulance.—The American Ambulance Society, Paris, has found it possible to convert an ordinary motor car into an ambulance at a cost of $50.

Medical Graduating Class Proceeds to the Front.—Prof. G. Reinhold is the newly elected rector of the University of Vienna, and he conferred the degrees on the graduating class in the medical department, October 2. The graduated physicians all entered the army at once. About twenty of them were already in uniform at the graduating exercises.

Hospital Ship Wrecked.—The hospital ship *Rohilla* en route from Queensferry, Firth of Forth, to Belgium for wounded, was wrecked off Whitby, October 30, with considerable loss of life. None of the medical officers or nursing sisters was lost. The crew and passengers were rescued by the ship's boats and the Whitby life boat.

Dearth of Medical Officers.—The British Expeditionary Force is said to be so short of medical officers that those they have are seriously overworked. It is suggested also that there is a lack of medical supplies. The demand for motor ambulances is very great and the London *Times* has raised a fund of nearly $2,000,000 to supply this demand.

War Surgery.—In the *Journal des Débats* appears an article by Henry de Varigny dealing with the subject of amputations in the present war. During the first month of surgical work at the Vichy Hospital more than 600 operations were performed, a very small number in comparison with the number of wounded, which was not less than 6,000. Of these 600 operations in the past month of war service, not ten amputations were recorded and the majority of these were minor.

Return on the Red Cross Ship.—The steamer *Red Cross*, which was sent to Europe by the American National Red Cross, with surgeons, nurses and medical supplies, returned to New York October 24. Rear Admiral Aaron Ward, U. S. N., who has charge of the work of distribution of supplies, laid special stress on the hospitality of the Hollanders. The stevedores at Amsterdam refused pay for their services; the Rotterdam Dry Dock Company declined payment for engine repairs and the Holland Railway Company trans-

ported four Red Cross units and more than 100 tons of supplies to the German frontier free of charge. The *Red Cross* brought home 150 refugees from Europe.

Work of the British Red Cross.—The pressure on the British Red Cross organization was exceedingly severe during the first week of November, during which nearly 10,000 soldiers were removed from trains to hospitals. The Royal Army Medical Corps handled the emergency admirably and the service was well equipped in every particular. The organization is rendering considerable help to the French, a large number of surgeons and dressers have been sent to Rennes and Calais to work among the French wounded. A body of surgeons was also sent to Dunkirk to look after the Belgian wounded. The first British Red Cross Hospital is now ready with a capacity of about 500 and motor ambulances are being placed in the field as rapidly as possible.

Deaths in the Profession at the Front.—Austria reports the death at the front of Drs. F. Haritz, Vienna; F. Mayer, A. Selinger, B. Mund; N. Ruczka and L. Stern.——The Vienna Medical Society has lost at the front three of the younger members, A. Jungmann, L. Grünfeld and E. Venus. ——In Germany the list of medical officers killed on the firing line includes R. Gottschalk, A. Bertheim, the chemist collaborator of P. Ehrlich, killed by accident on his way to the front; L. Kirchheim, assistant at the medical clinic at Marburg, aged 38; F. Meyer-Betz, and G. Herrenschneider. The *Münchener med. Wochenschrift* has published up to and including the issue for October 20, the names and titles of sixty-four physicians and medical officers and of nine last-year medical students, a total of seventy-three, besides several missing.

Red Cross Hospital Train.—A hospital train, said to be the most complete and efficient moving hospital ever constructed, has been given by the Hamburg Red Cross and is now in operation on the western battle front. The train has 36 cars, including 29 for the transportation of the seriously wounded, and 278 beds; a magazine car; a baggage car; a supply car; a physicians' car; an apothecary car; and a car for the hospital corps. Beds with spring mattresses and furnished with laundered linen and fresh blankets are supplied for the sick. The cars are fitted with every conceivable sanitary convenience and the beds are so constructed that they may be used as stretchers. One-half of the physicians' car is divided into compartments for the use of the physicians, while the other half contains a dining and consultation room.

The Wounded Servians.—A European journal gives an alleged extract from the diary of a dead German officer regarding the wounded Servians: "When one leaves the organized hospitals and wends one's way through the crowds of wounded who block the pavements and enters a lower-class café, the appalling tragedy of it all fills even the spectator with a sense of hopelessness. There, like cattle on their bed of straw, lie sufferers from all manner of hurts. They remain mute and uncomplaining, just as they have been dropped down from the incoming oxen transports. Their wounds—3, 4 or 5 days old—have yet received no attention save the primitive first aid of the battle-field. Blood poisoning is setting in; limbs that prompt dressing would have saved are fast becoming victims for the surgeon's knife. Most of them know the risk they run, for this is their third war—often, too, their third wound—in two short years. Yet the doctors cannot come, because every man of them is already doing more than human energy allows. It is a heart-rending sight to look down on this helpless mass and to realize that many of them have been sentenced to painful death for mere lack of primitive medical attention."

Amateur Nursing.—The *Deutsche med. Wochenschrift* says that the physicians and surgeons at the German front are grateful indeed for the thorough sifting process applied by the authorities to the crowds of women who volunteer to nurse the wounded and sick. The medical staff of a hospital is never very enthusiastic over "dilettante nurses." One volunteer nurse complained recently that the night service was too long; she thought six hours was long enough. Another was distressed because the day shift went on duty at 7; she was not used to getting up so early. Another did not want to have anything to do with tuberculous patients and she had to be transferred to the quarters of the wounded and her chum with her, as they would not be parted. Amateur nurses have such a preference for the care of the wounded that the Red Cross now will not accept them unless they agree to tend the sick with internal diseases as well as the wounded at need. These recent happenings, it is said, confirm the wisdom of the authorities in permitting scarcely any but trained nurses to be sent to the front. Extensive arrangements have now been made, however, to train nurses and attendants. All the public hospitals, the Red Cross and numerous other institutions are making every effort to train large numbers of nurses. The municipal sterilizing plants are sterilizing dressings and clothing donated for points outside. The *Medizinische Klinik* comments: "Thus the city of Berlin has shown in every way its preparedness for war (*Kriegsbereitschaft*)."

German and Austrian Physicians Decorated for Gallantry at the Front.—Austria reports that Dr. J. Winter has been knighted for distinguished service in the field and in the prevention of epidemics; the German Kaiser has also conferred a decoration on him. Other Austrian orders have been conferred on G. Arnstein, K. Wolfgang, R. Pollak, E. Bayer, F. Baruch, A. Lerch, V. Eisenmenger and K. Kaunitz. Official recognition for heorism on the firing line mentions the names of Drs. E. Hochmann, A. Polacco and F. Fischer in the latest published list. In Germany the iron cross awarded for special acts of gallantry has been given to 120 members of the profession, including nineteen professors who went from the lecture room to the front. Others besides those already mentioned in these columns are von Angerer, C. Engel, Graser, Riese, Schlayer, Thiemich, Ullmann, Wullstein, Müller of Munich, Lange, Benario, Berghaus, Kausch, Loening, Rumpel, Lennhoff, Stiertz, Küttner and Wachsen. The *Medizinische Klinik*, November 1, adds several more names to the list, among them that of T. v. Olshausen, a member of its editorial staff. This exchange is published by a syndicate of forty-eight physicians and nearly all are at the front, and most of them are already recipients of the iron cross. Bier is in this, and also is one of the group of fifteen that publish the *Münchener med. Wochenschrift*. Most of these also are on the list of those to whom the iron cross has been presented.

Transportation of the German Wounded.—The *Deutsche med. Wochenschrift*, October 15, publishes an official communication from the state war department deprecating suggestions from others in regard to the transportation of the wounded. No matter how well meant the suggestions, it says, if they are impractical or conditions forbid their being carried into effect, they merely render the public uneasy to no purpose. The communication is a reply to an article by Czerny in a previous issue in which he made a few suggestions, and his words were widely copied in the daily papers. The communication from the war department states further that theoretically it is in complete accord with most of Czerny's remarks, but all who have been out on the firing line know that there theory and actual practice—as so often happens in war—are worlds apart. "During the first of the campaign the army pushed forward so rapidly that no attempt was made to have the hospital organization keep up with it. The wounded were rushed back from the danger zone by thousands and thousands, and as the railroads had been destroyed, this was a difficult task, but the wounded all preferred to be sent back rather than to be left on the firing line. The hospital trains could not get down to the front, as the tracks were clogged with trains loaded with troops and supplies, so that there were no means of transportation for the wounded except freight trains. More than 120 trains were sent out, each carrying from 300 to 500 wounded. But all were well bandaged and able to bear the transportation. In order to accomplish this, the medical staff had to work with the utmost devotion at high pressure day and night. Only those not seriously wounded were sent back by train. The medical staff made strict provision for a medical force and attendants to accompany each train. If such was lacking at any point those who had the matter in charge were held to strict account. At present there are fifty hospital trains running, with practically clear passage from the front to the home zone.

"Each is fully equipped with physicians and nurses and everything needed for the transportation and care of the wounded, kitchen car, operating room, etc. If the tracks should again become congested with other trains—which is not impossible—then the freight trains will have to be utilized again, but provision has been made so that at many stations, especially those on the frontier, there are already ample supplies of blankets, mattresses, heaters, etc., with medical and other attendants, so that each train can be fitted out properly. The suggestion that one wall of the freight car be taken out is not practicable."

LONDON LETTER

London, Nov. 6, 1914.

Treatment of the Wounded

Though most of the wounds received in the war are slight and recovery from them takes place rapidly, some are of great severity and attended by complications, of which tetanus and emphysematous gangrene are the most important. The bacteriologic conditions are peculiar and novel to our bacteriologists working at the front in northern France. In England wound infection is almost exclusively due to staphylococci and streptococci. In France the infecting organisms usually are of the anaerobic class, such as the tetanus bacillus, the *Bacillus aerogenes capsulatus* and the bacillus of malignant edema. Only after a considerable time and sometimes not at all does ordinary pus form. The reason of the difference is that the soil of France and Belgium is cultivated to a degree unknown in England, what is known as "intensive cultivation." It has been thoroughly manured for many years and therefore teems with the anaerobic organisms which inhabit intestines of domestic animals. The soldiers standing in the trenches for hours get their clothing and hands caked with mud. A missile which hits them carries in with it these anaerobes.

The infections induced are serious and frequently fatal. A great improvement has been made in the transportation of wounded from the front. The time now occupied is much shorter and instead of mere trucks, thoroughly equipped ambulance trains are used. Each is provided with a staff of not fewer than three surgeons, four women nurses, and a number of orderlies. Everything necessary for the changing of dressings, and even for the performance of an operation by running the train into a siding, is provided. The feeding of the patients during transit has not been forgotten; there are one or more kitchens on each train. Now that the British army instead of facing north from the east of Paris has been moved into the north of France on the Belgian frontier and faces east, the distance from England is much shortened and the French seaports on the English Channel have become veritable hospital towns. Large buildings such as casinos have been converted into hospitals and in consequence of their good lighting and ventilation answer admirably. The hospitals have far larger professional staffs than the official regulations require, and, thanks to the system of specialization introduced in the Army Medical Corps about ten years ago, the staff of each includes at least one man who is a thoroughly skilled and experienced operating surgeon. Furthermore, of the men who have been enlisted as temporary surgeons, many have had considerable surgical experience. A good many of them are fellows of the Royal College of Surgeons of England. From these hospitals the wounded who are fit for the journey are sent home in splendidly equipped hospital ships, which are large transatlantic liners that have been converted. The bulkheads have been removed and the place of small cabins taken by large wards. The ships are well staffed with surgeons, nurses and orderlies, and the passage, which takes only a few hours, is accomplished without inconvenience. Many thousands of wounded are now in this country distributed in the hospitals throughout the British Isles. Mr. D'Arcy Power, surgeon to St. Bartholomew's Hospital, and lieutenant-colonel attached to the first London general hospital for the reception of the wounded, gives his impressions of the treatment in the *Lancet*. He finds that as in ordinary civil practice, the net result of the work appears to show that meddlesome surgery is generally bad surgery. Wounds need no longer be probed, drained and packed. Tempered with discretion, it is better to wait than to operate unless the patient is losing ground. Considerable experience, however, is required to decide when to wait and when to operate, because injuries which appear slight superficially may conceal conditions that demand immediate treatment. Looking to the fact that the chief infection seems to come from the patient's own skin, antiseptic surgery is preferable to aseptic methods. Dry dressings must give place to compresses and fomentations wherever possible. Iodin applications seem to be more effective than the solutions of mercuric chlorid and mercuric iodid, which have hitherto been the more generally used. The youth and health of the patients render the prognosis even of severe injuries correspondingly good and enable the surgeon to take waiting risks which might otherwise be hazardous. It is better, therefore, to err on the conservative rather than on the radical side of surgery, at any rate in the earlier stages.

The Belgian Wounded in England

The advance of the Germans through Belgium led to the constant removal of the wounded from one hospital base to another. At length when driven to the sea the wounded were embarked in large numbers for England. One night some thousands were landed at Folkestone. The scene of landing was weird in the extreme. The whole town was in darkness—a military precaution adopted in the coast towns. A large hotel was prepared for their reception into which they were conveyed by physicians, medical students acting as dressers, and nurses who were hastily sent down from London. By the aid of electric torches, tripping over the flower beds of the hotel was avoided. The more seriously wounded were investigated on board the ships and sent in motor ambulances to the nearest military hospital. The rest were placed in ambulance trains and sent to various hospitals. As in the case of the British soldiers, most of the wounds were due to shells, the majority being in the upper limbs.

Dispensary for Belgian Refugees

A dispensary has been opened under the auspices of the War Refugees Committee for the medical treatment of sick Belgian refugees. The enormous influx of refugees, many of whom speak only Flemish, has rendered it necessary to organize medical relief to secure separate quarters, and to take advantage of the services of Belgian physicians who have found an asylum in this country. Arrangements have been made for a service of consultations daily, and they are now in full working order with an efficient staff of nurses of the British Red Cross. Many Belgian physicians now in London, some of whom are well-known specialists, have offered their assistance for consultation in special cases.

War the Absorbing Topic

The war, of course, is still the all-absorbing topic. It fills the newspapers almost to the entire exclusion of everything else. There is not a very great deal of special medical interest, however, forthcoming at present—apart from the scientific reports on the casualties of war which are not public property yet. Our hospitals, military, permanent and extemporized, are filling up with wounded who have been successfully transported from the area of war, but generally speaking, notwithstanding the conditions of hardship and exposure, to which from the conditions and sanguinary nature of the fighting, the wounded are exposed, often without shelter and food, for hours, sometimes even for days, it is positively remarkable how well the majority of the patients do when they get here; though now that the fighting takes place actually nearer here than to the French base and we get the cases earlier, we are getting a large proportion of more severe wounds.

Casualties and Rewards

The casualties in the medical corps continue to be heavier than in previous wars. Since my last report six officers of the Royal Army Medical Corps have been killed, one wounded and one reported missing. A particularly sad one is that of a young Australian doctor, Captain Brian Pockley, of the Australian Naval Reserve. He was the son of a prominent Sydney (N.S.W.) doctor, a former president of the Australasian Medical Congress, and graduated at the University of Sydney only this year. He was engaged with a landing party in New Guinea from an Australian warship, and finding a wounded sailor had to be sent to the rear, placed his Red Cross coat on the sailor who carried the wounded man, to indicate that he was temporarily non-combatant. While without his coat attending another wounded man he was shot by a German officer who failed to recognize his protected character in the absence of his badges. Captain Pockley was only 24 years old. As a set-off to the casualties it may be mentioned that the French Cross of the Legion of Honor has been bestowed on three officers of the Royal Army Medical Corps, Major S. L. Cummins and Captains S. E. Lewis, J. T. McEntire, H. S. Ranken, the last of whom has, unfortunately since died from his wounds.

The Indian Wounded

The care of our wounded Indian soldiers, which on account of caste, questions and other details at one time seemed likely to be a difficult problem, has now been satisfactorily settled. At Netley Hospital, a considerable number have been received under the care of Colonel Sharman, of the Indian Medical Service, who has a staff of sixty Indian orderlies. Two hotels also have now been chartered by the government at Brockenhurst near Southampton, where the wounded land and whence they are transported by motor ambulances.

These two hospitals will accommodate 2,500 patients. Huts are also to be erected in Brockenhurst Park to accommodate a further 500. Their staff will consist of eleven medical officers and thirty orderlies. The enthusiasm in England over the brilliant and devoted service rendered by the Indian troops has stirred up a grateful activity to see that they lack for nothing from the native viewpoint. A large number of Indian residents, including many of very high position, barristers, educationists, and even retired native officers of the Indian Medical Service, have offered their services to Netley as orderlies. The Indians make wonderful patients, as they are redoubtable and marvelously disciplined fighters, and their loyalty and devotion to the empire are a revelation to those who have not hitherto realized it from experience in India.

The Order of St. John of Jerusalem

The Order of St. John of Jerusalem, the English League of the Knights of Malta, has now united its forces with the British Red Cross under Director-General Arthur Sloggett. The order has 107 hospitals, containing 4,610 beds, England; also seventy-eight convalescent homes with 2,665 beds. Of these hospitals twenty-eight are in use and fourteen are now mobilizing. The order has also three hospitals of 100 beds each in France.

PARIS LETTER

PARIS, Nov. 5, 1914.

Treatment of Gangrenous Military Wounds

October 21, Dr. Quénu, professor of clinical surgery at the Faculté de médecine de Paris, read an interesting paper on this subject before the Société de chirurgie. He did not agree with Dr. Delorme (THE JOURNAL, Oct. 24, 1914, p. 1492), that the treatment of gaseous gangrene should consist of subcutaneous or subaponeurotic injections of hydrogen peroxid. Quénu believes in free opening of the wound and scrupulous disinfection of the cavities with removal of foreign bodies and loosened fragments. Hydrogen peroxid is sufficient to disinfect superficial gangrene, but for gangrene extending into the depths of muscular masses Quénu uses hot air raised to 500 or 600 C. brought into contact with the gangrenous parts by a tube. The hot air first dries and then mummifies the gangrenous surfaces. A certain amount of time is necessary for this sterilization by heat, and large specula must be used like those employed in vaginal operations to sterilize the most remote crevices without danger of carbonizing the muscles and affecting the subjacent tissues too deeply. The large vascular and nerve trunks must be avoided and the hot metal tube must not be brought into contact with the tissues, which would cling to it, producing a closed cavity in which the air-pressure might cause accidents. The end of the tube must be held at a distance of some centimeters from the tissues and the various pockets in the wound must be reached. The following days the wound is to be washed with hydrogen peroxid. The little dried scars are quickly eliminated and the bottom of the wound soon shows a healthy pink tint.

Tincture of Iodin for the Use of Soldiers

It is well known that bullet wounds immediately painted with tincture of iodin in the majority of cases are aseptic and benign. Similar painting done in ambulances where the soldiers are not received until hours or even days after having been wounded, is likely to be inefficacious. To do good, tincture of iodin must be applied at once, and this is possible only if the soldiers themselves are able to apply it. To provide the soldiers with tincture of iodin in a utilizable form without encumbering them too much is a problem which presents great practical difficulties. Iodin tablets, which are quite practicable for the ambulances, are not so for the soldiers, who have no facilities for dissolving them. A pharmacist in Paris, M. Ronert, has produced sealed ampules about 6 mm. (nearly a quarter of an inch) in diameter and about 6 or 7 cm. (2 inches) long containing tincture of iodin mixed with an iodid to make it unchangeable, and put up in a little case, taking up no more room in the pocket than a little pencil. Near one end the ampules are constricted and filed so as to break readily in the hand. Each one contains a cotton applicator and sufficient iodin to paint the wound and surrounding skin, and costs 10 centimes (about 2 cents). Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, has found them very practicable, and the Baroness Henri de Rothschild, who supports and directs an auxiliary hospital, has offered to give the army 200,000 ampules.

The Nobel Prizes

The Swedish scientific institutions which award the Nobel prizes have decided, in view of the European situation, to postpone the distribution of the prizes in literature, medicine, chemistry and physics until next year. The assent of the government is needed, but it is regarded as certain to be given.

The Situation of Students in the Army

The reopening of the departments of the universities has caused some families to fear that an unfair advantage would be given the students not in the army over those who are in the ranks. The minister of public instruction has just issued a promise that all measures will be taken to safeguard the rights of the students who are defending the country. Special examinations will be held, courses will be given for their benefit and competitive examinations will be adjourned until after the end of hostilities.

Privileges for Belgian Physicians

At its last session, the Académie de médecine decided to ask for Belgian physicians who have taken refuge in France the privilege of practicing their profession in the numerous localities which have been deprived of medical assistance by the general mobilization.

Thanks to the American Colony

M. Georges Lecomte, president of the Société des gens de lettres, recently presented to the American ambassador most hearty thanks for the remarkable work of the American hospital in Paris. "The admirable attentions lavished by eminent American physicians and surgeons," said M. Lecomte, "and the devotion of the whole American colony has filled our society with enthusiasm and gratitude."

Personal

Dr. Marfan, professor of therapeutics at the Faculté de médecine de Paris, has been, at his own request, appointed professor of the hygiene and clinical medicine of early infancy in the school.

The *Journal Officiel* has just published a note in which the government expresses the gratitude of the country for the noble conduct of Dr. Langlet of Reims "who has been to his fellow citizens a most noble example of coolness, courage and dignity during the occupation and bombardment of the city."

Marriages

FRED DESIRÉ LA ROCHELLE, M.D., Springfield, Mass., to Miss Elizabeth Sarah Henstridge of Hamilton, Ont., November 7.

JAMES HENRY MCKELLAR, M.D., Pasadena, Cal., to Miss Dorothy Kellogg of Altadena, Cal., at Pasadena, November 4.

WILLIAM ALEXANDER BOYD, M.D., Baltimore, to Miss Harriet M. Shannon of Washington, D. C., November 4.

STANLEY HENRY MELLEN, M.D., New York City, to Miss Hazel May White of Newark, N. J., November 4.

WALTER EDGAR STEWART, M.D., Cushing, Okla., to Miss Ethel Gill of Hattiesburg, Miss., October 18.

RICHARD DALE HOPKINSON, M.D., to Miss Florence A. Savage, both of Philadelphia, November 4.

FLETCHER LANGDON, M.D., Cincinnati, to Miss Elizabeth Inman of Winchester, Ind., November 5.

CHARLES NEWTON HAHN, M.D., Dunnegan, Mo., to Miss Clara Flint of Cliquot, Mo., October 21.

FRANK HENRY MORROW, M.D., to Miss Catheryne Rusche, both of Columbus, Neb., November 4.

ROBERT MOFFET PALMER, M.D., to Miss Olive Meyer, both of Johnstown, Pa., October 28.

HENRY F. DEICHER, M.D., to Miss Anna Kohl, both of Plymouth, Wis., November 4.

FRANKLIN BENNETT MCCARTY, M.D., to Miss Mary Bryan, both of Chicago, October 31.

WILHELM HENRY VORBAU, M.D., to Miss May Hearn, both of Athens, Ohio, October 8.

JAMES F. DEVIN, M.D., to Mrs. Fannie Conger, both of Seattle, Wash., October 29.

DAVID GORDON, M.D., to Mrs. O. D. Fields, both of Chillicothe, Mo., October 28.

Deaths

Charles Sedgwick Minot, S.D. Harvard, 1878; James Stillman professor of comparative anatomy and director of the laboratory of anatomy at Harvard Medical School since 1905; formerly lecturer on embryology; instructor in oro-pathology and surgery; instructor and assistant professor and professor on histology and embryology in his Alma Mater; Harvard exchange professor at the Universities of Berlin and Jena in 1912 and 1913; eminent as an anatomist; member of many learned societies; author of numerous papers on anatomy, embryology and biology; died at his home in Boston, November 19, aged 61.

John Shrady, M.D. College of Physicians and Surgeons in the City of New York, 1861; a member of the Medical Society of the State of New York and once president of the New York County Medical Association; formerly editor of the *Medical Register*; for fifty years a practitioner of Harlem, N. Y., where he was familiarly known as the "Little Father of the Poor"; a veteran of the Civil War, in which he served as surgeon of the Second East Tennessee Volunteer Infantry and a captive in Libby Prison; died at his home in Stamford, Conn., November 11, aged 84.

John Augustus Horgan, M.D. Harvard Medical School, 1888; a Fellow of the American Medical Association and a resident of Roxbury for more than twenty-five years; president of the St. Vincent De Paul Society of Boston, and visiting physician to the Foxboro State Hospital; died at his home in Roxbury, Boston, November 11, after a surgical operation, aged 59.

Eugene A. Hutchins, M.D. Berkshire Medical College, Pittsfield, Mass., 1862; for thirty years a practitioner of Minneapolis; a member of the Minnesota State Medical Association; consulting physician to the Asbury Hospital, Minneapolis; died in that institution, November 9, after a surgical operation, aged 76.

William Theodore Fletnitz, M.D. University of Basle, Switzerland, 1895; National Medical University, Chicago, 1901; a Fellow of the American Medical Association; formerly treasurer of the Central-Western Kansas Medical Society; died suddenly at his home in Kansas City, Mo., November 1, aged 47.

Wilson R. Priest, M.D. Medical College of Ohio, Cincinnati, 1886; a member and once president of the Kansas Medical Society; local surgeon at Concordia, Kan., for the Missouri Pacific and Santa Fe systems; chief surgeon to St. Joseph's Hospital, Concordia; died at his home November 10, aged 54.

C. Milo Brady, M.D. Tulane University, New Orleans, 1893; medical inspector of the Louisiana State Board of Health for a time; for several months a student of tropical diseases on the West Coast of Africa and in Mexico; died at the home of his father in Waggaman, La., November 5, aged 45.

Thomas Benton Spaulding, M.D. New Orleans School of Medicine, 1860; assistant surgeon to the Fifteenth Louisiana Volunteer Infantry, C. S. A., during the Civil War, and later a practitioner of Kingston and Greenville, Texas; died at the home of his daughter in Dallas, Texas, October 27, aged 74.

Jacob Lopes Cardozo, M.D. Medical College of the State of South Carolina, Charleston, 1878; chief of staff of the Gates Avenue Dispensary and physician to the Eastern District Dispensary, Brooklyn; died at his home in Brooklyn, November 3, from senile debility, aged 82.

Joseph Lewis Powers, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1876; formerly health officer of Reinbeck, Iowa; but for several years a resident of Waterloo; died at the home of his daughter in that city, October 29, from cerebral hemorrhage, aged 90.

Joseph P. Mellard, M.D. Medical College of the State of South Carolina, Charleston, 1872; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; died at his home in St. George, S. C., October 12, aged 76.

Walter C. Stillwell, M.D. University of Pennsylvania, Philadelphia, 1873; a member of the Medical Society of the State of Pennsylvania and for many years a druggist of Philadelphia; died at his home in that city, November 14, from cerebral hemorrhage, aged 63.

Henry H. Pemberton, M.D. Jefferson Medical College, 1872; Hahnemann Medical College, Philadelphia, 1873; for forty years a practitioner and real estate broker of Long Branch, N. J.; died at his home in that city, November 11, from heart disease, aged 65.

Simon Preston Brown, M.D. Rush Medical College, 1869; for more than forty years a practitioner of Elgin, Ill.; died at his home in that city, November 7, from senile debility, aged 82. At his funeral eight physicians of Elgin served as active pallbearers.

John Wilson Hammonds, M.D. University of Nashville, Tenn., 1867; surgeon in the Confederate service throughout the Civil War; for nearly half a century a practitioner of Sevier County, Ark.; died at his home in Chapel Hill, Ark., October 28, aged 75.

Charles Buchanan Martin, M.D. University of Pennsylvania, Philadelphia, 1887; for several years a practitioner of Tacoma, Wash., but since 1903 a resident of Quarryville, Pa.; died at the home of his sister in that place, October 26, from nephritis, aged 53.

Osmon Baker Way, M.D. Dartmouth Medical College, Hanover, N. H., 1866; a member of the New Hampshire Medical Society and a well-known physician of Claremont, N. H.; died in Brattleboro, Vt., October 26, from arteriosclerosis, aged 74.

Ward Beecher De Long, M.D. Ensworth Medical College, St. Joseph, Mo., 1906; a member of the Missouri State Medical Association and a practitioner of Saline, Mo.; was killed by the overturning of his automobile near Saline, November 8, aged 43.

Thomas Lafayette, M.D. University of Lyons, France, 1844; a pioneer practitioner of Southwestern Missouri and assistant surgeon of Volunteers throughout the Civil War; died at his home in Hopkins, Mo., August 16, from senile debility, aged 95.

Wilfred V. Stephenson, M.D. University Medical College, Kansas City, Mo., 1905; of Mound City, Kan.; a Fellow of the American Medical Association; died in Wesley Hospital, Kansas City, Mo., November 10, from heart disease, aged 35.

Andrew Sprague Oliver, M.D. Hahnemann Medical College, Philadelphia, 1881; for four years a member of the board of public library trustees of San Jose, Cal.; died at his home in that city, November 8, from cerebral hemorrhage.

Thomas Walker Stone, M.D. Louisville (Ky.) Medical College, 1884; of Los Angeles, Cal.; formerly a member of the faculty of the medical College of Evansville, Ind.; died in the Stockton, Cal., State Hospital, November 6, aged 59.

John F. Campbell, M.D. University of Michigan, Ann Arbor, 1876; a Fellow of the American Medical Association and for fifteen years a member of the board of education of Lansing, Mich.; died at his home in that city, November 3, aged 61.

Samuel Stem Apple, M.D. Jefferson Medical College, 1869; a member of the Medical Society of the State of Pennsylvania and a veteran of the Civil War; died at his home in Easton, Pa., November 11, from senile debility, aged 75.

Alexander Donaldson McDonald, M.D. Washington University School of Medicine, Baltimore, 1877; a member of the Medical Society of the State of North Carolina; died at his home in Wilmington, N. C., November 7, aged 82.

James Webster Belden, M.D. Tulane University, New Orleans, 1888; of New Orleans; died in Touro Infirmary, New Orleans, November 7, from carcinoma of the intestine, three days after a surgical operation, aged 54.

Alexander Martin Heron, M.D. Medico-Chirurgical College of Philadelphia, 1899; a Fellow of the American Medical Association; formerly health officer of Lakewood, N. J.; died at his home in that place, October 11, aged 49.

John Hooker McCutchan, M.D. Starling Medical College, Columbus, Ohio, 1894; surgeon to the Evansville and Indiana Southern Traction Company at Evansville, Ind.; died in a hospital in that city, November 7, aged 44.

John N. Kerr, M.D. Starling Medical College, Columbus, Ohio, 1877; for many years a practitioner of Logan County, Ohio; died at his home in Boise, Idaho, September 4, from valvular heart disease, aged 62.

Martin Luther Knight, M.D. Tulane University, New Orleans, 1895; a member of the Mississippi State Medical Association; died at his home in Hazelhurst, Miss., July 18, from angina pectoris, aged 54.

James Ward Keeney, M.D. Bellevue Hospital Medical College, 1874; formerly a member of the board of health and police pension board of San Francisco; died in that city, November 7, aged 62.

James Alison Lee, M.D. State University of Iowa, Iowa City, 1873; for many years a practitioner of Lone Tree, Iowa; died at his home in Lisbon, Iowa, October 28, from carcinoma of the liver and mesentery, aged 66.

Edward Harvey Taft, M.D. Dartmouth Medical School, Hanover, N. H., 1897; a Fellow of the American Medical Association; died suddenly at his home in Milford, N. H., November 4, aged 45.

Alvah Miller Wilson, M.D. Washington University Medical School, St. Louis, 1896; formerly a Fellow of the American Medical Association; died at his home in St. Louis, November 3, aged 39.

Joseph Muse Worthington, M.D. University of Maryland, Baltimore, 1872; a member of the Medical and Chirurgical Faculty of Maryland; died at his home in Annapolis, September 21, aged 68.

William H. Hall, M.D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Havana, Ill., October 30, a short time after a surgical operation performed in Chicago, aged 74.

Robert K. Cherry, M.D. Leonard School of Medicine, Raleigh, N. C., 1906; a colored practitioner of Germantown, Philadelphia; died at his home, October 28, from pneumonia, aged 34.

Samuel J. Hoffman, M.D. University of Maryland, Baltimore, 1877; a member of the Medical Society of Virginia; died at his home in Woodstock, Va., from carcinoma, aged 62.

Godfrey Beaumont, M.D. University of Louisville, Ky., 1865; of Kalamazoo, Mich.; died at his summer home in Moore Park, Mich., September 26, from diabetes, aged 83.

Solomon Adams Bergman, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1906; of Buck, Tex.; died in Moscow, Tex., August 1, from cerebral hemorrhage, aged 35.

Henry C. Miller, M.D. Homeopathic Medical College of Missouri, St. Louis, 1871; of Wilkinsburg, Pa.; died at the home of his sister in that place, November 2, aged 80.

Milledge Marcellus Conner, M.D. Kansas City Hospital College of Medicine, Kansas City, Mo., 1885; of Augusta, Ga.; died in the Augusta City Hospital, October 25.

Deville J. Moyer, M.D. University of Michigan, Ann Arbor, 1893; a member of the Kansas Medical Society; died at his home in Junction City, Kan., September 9, aged 52.

Edward R. Wren (license, Mississippi) for many years a practitioner of Amory, Miss.; died at the home of his son in Ensley, Ala., October 26, aged 76.

Edward Horton Flint, M.D. Hahnemann Medical College, Chicago, 1880; died at his home in Syracuse, N. Y., October 30, from pneumonia, aged 54.

George Washington Chamberlain, M.D. New York University, New York City, 1873; died at his home in Hinsdale, Mass., October 5, aged 65.

A. G. Andrews, M.D. University of Louisville, Ky., 1868; died at his home in Spring Creek, Tenn., August 16, from senile debility, aged 81.

Eugene Bonaparte Cushing, M.D. Hahnemann Medical College, Philadelphia, 1871; died at his home in Lynn, Mass., September 21, aged 68.

W. Rudolph Froelich, M.D. University of Würzburg, Germany, 1903; died suddenly at his home in Stuttgart, Ark., September 25, aged 37.

Henry Jefferson Hascall, M.D. Boston University School of Medicine, 1879; died at his home in Shrewsbury, Mass., September 19, aged 62.

Isaac Grimshaw Worrall, M.D. New York University, New York City, 1850; died at his home in Creskill, N. J., about October 26, aged 86.

Charles Samuel Sargent, M.D. Boston University School of Medicine, 1879; died at his home in Webster, Mass., September 26, aged 58.

James Thompson Wilson, M.D. University of Pennsylvania, Philadelphia, 1864; died at his home in Tyrone, Pa., September 23, aged 74.

Eugene Hinton Rencher, M.D. University of Alabama, Mobile, 1910; died at his home in Jamestown, Ala., September 17, aged 37.

Lorenzo William Thompson, M.D. Trinity Medical College, Toronto, 1885; died at his home in Listowel, Ont., September 13, aged 60.

Ethan G. Allen, M.D. Pulte Medical College, Cincinnati, 1889; died at his home in Shreveport, La., October 21, aged 58.

Correspondence

Postgraduate Education

To the Editor:—If the practicing physician would either move forward, or prevent his falling behind the times, he must avail himself at intervals of postgraduate courses. The necessity for providing these has long been recognized both at home and abroad, notably in the German Empire, but the task of properly organizing the work of postgraduate instruction is still unfinished.

In December, 1899, distinguished physicians of Berlin in collaboration with the Prussian state government organized the Central Committee of Postgraduate Medical Education in Prussia, whose duty "is fulfilled in stimulating the scientific education of practical physicians, by promoting in the larger Prussian towns the organization of local unions which take on themselves the work of arranging gratuitous courses and lectures." Of these local unions not less than thirty-one are in existence. The expenses of organization of the central committee are met by a contribution from the Prussian state government, in certain parts of the empire by subventions from local societies, and by a small matriculation fee paid by auditors. During the years from 1900 to 1906 there were called to life in other states of the confederation and in Prussia national committees for the purpose of promoting medical extension courses.

In 1908 on the initiation of the Prussian central committee, the members of state committees of the various federated states of the German empire met and founded the Imperial Federal Board for Postgraduate Medical Education. The function of the federal board consists in giving definite suggestions at occasional conferences to the chairmen of the state committees, but the latter work quite independently for their own state. These demonstratorial courses and lectures are free (a small registration fee excepted), and the lecturers receive no recompense as a rule, "but only repayment of their actual expenses."

To Germany belongs the credit of the founding in 1910 of an international committee for medical postgraduate education, and not less than fifteen countries, including the United States, are represented by delegates. This committee holds periodic conferences, generally on the occasions of the international medical congresses, at which questions of vital interest bearing on postgraduate education are discussed with a view to mutual enlightenment and stimulation.

With a view to promoting postgraduate medical education in general, and at the same time as a memorial to the Empress Friedrich, the Kaiserin Friedrich-Haus was established in 1900, solely as the result of voluntary contributions, amounting to 1,500,000 marks, and dedicated in the presence of the emperor and empress. The annual cost of maintenance is about 50,000 marks ($12,500), derived partly from the state government, partly from rentals paid by both the university and exhibitors, and finally from the foundation capital not used up in building. The present director is Prof. Dr. C. Adam, who conducts visitors through the handsome structure, pointing out its numerous and varied treasures, and also the uses to which the various portions of the building are devoted. As stated in a leaflet issued by him, the Haus serves:

1. "As a central home for postgraduate medical education and its organizations, namely, (*a*) the Central Committee for Medical Postgraduate Education in Prussia; (*b*) the Federal Board for Postgraduate Medical Education; (*c*) the International Committee for Medical Postgraduate Education.

2. "As a center of instruction for physicians. It contains rooms and laboratories for practical courses in all the sciences auxiliary to modern medicine, such as clinical chemistry, microscopy, bacteriology, roentgenology and scientific photography; also a large and a small theater for lectures.

3. "As a central depot for auxiliary appliances for medical instruction belonging to the 'State Collection of Medical Educational Appliances.' This depot lends free of charge material for teaching purposes for physicians' courses, academic lectures, as also for the instruction of the lay public in

the science of public health, etc. It contains appliances for demonstrations of all kinds, such as diapositives, microscopic preparations, stereoscopic illustrations, charts, atlases, manikins, etc.; the other objects are collected in the following special divisions: plastic department, nursing department and medicohistorical department (with a historical collection of instruments and bandages). Admission to physicians, only, and free of charge. Open as a rule on Wednesday from 10 to 3.

4. "As a place of union for medical science and practical medical technology by means of the 'Permanent Exhibition for the Medicotechnical Industry,' where the doctor will find all the instruments and appliances necessary for the practice of his profession in the departments of surgery, electromedicine, optics, etc.; open to all free of charge, on weekdays (except Saturday) from 10 to 3.

5. "As a place for exhibitions, rooms being placed free of charge at the disposal of special scientific exhibitions for medical instruction.

6. "As a medical information bureau which gives, gratis, information concerning all postgraduate courses in the German Empire, as also concerning all other matters touching on the postgraduate education; furthermore, concerning all medical institutions, hospitals, collections, etc., in Berlin with regard to the time and conditions for their inspection; lastly, concerning the possibility of participation in clinical lectures and lecture evenings of medical associations.

7. "As a literary center for all matters concerning postgraduate education, since also the editorial offices of the *Zeitschrift für ärztliche Fortbildung*, published by the German organizations for postgraduate education, are to be found here."

If there was a single reason for the creation of so complete an organization of graduate medical education as has been developed in Germany during the last decade and a half, then there are a dozen equally cogent reasons why the question of the reorganization of postgraduate education in America should be taken up with a view to bringing about a uniform and much extended system. I would suggest that the work already begun in this country under the auspices of the American Medical Association be promptly enlarged and promoted. J. M. Anders, M.D., Philadelphia.

School Athletics and Gate Money

To the Editor:—I was much interested in the editorial on "High School Athletics" (The Journal, Nov. 14, 1914, p. 1765). I should like to see another dealing with the prevention of the evil therein discussed. My own experience, embracing my own student life at school and college, with participation in their athletic activities, three years as teacher in boys' boarding schools, and the observation of sixteen years as a physician sharpened by a never-waning interest in educational subjects, has long since led me to the conclusion that the key to the evil is *gate money*.

Students as individuals do not engage in professionalism, but colleges collectively do so, as surely as do the owners of the baseball league teams. They do not receive their profits in the form of dividend checks, but in the increased attendance and students' fees, and in endowment. The money received is spent on trainers, war material and commissariat, and even on spies. Athletic fields are erected that exceed in seating capacity the Colosseum. Athletics, intended as the young man's sport and recreation, *ut sit mens sana in corpore sano*, has become a commercialized asset, and the candidate for a school or varsity team completely loses his individuality and initiative, becoming the puppet of a professional coach, the tenure of whose office and the size of whose salary depends on the amount of kinetic energy he is able to extract from those under his direction.

Let us imagine, if we can, college athletic contests without a charge for admission. They would cease to be public property, and would be supported by the contributions of the students themselves and of those who are properly interested in their activities. Doubtless there would be less money spent, the public would be deprived of their entertainment, and the college of valuable advertising assets. Sport writers of the daily newspapers would be deprived of much material, and the poor trainer and coach would lose their jobs. The contests themselves would lose much of their proficiency. The training table would disappear, and the output of energy would be within the limit of that furnished by the ordinary college diet.

But even these woes might be endured if we had better sportsmanship, and fewer cardiopathies in later life.

B. M. Randolph, M.D., Washington, D. C.

Proper Regulation of School Athletics

To the Editor:—To all those who are interested in the health of schoolchildren, the editorial on "High School Athletics" (The Journal, Nov. 14, 1914, p. 1765) is most welcome. Criticisms of unregulated and unguarded high school athletics are, however, often undeserved. I would join with you in the appreciation of well-conducted physical training work in the gymnasium. There are, however, two forms of athletics: the *intensive*, which is the usual form, in which a few boys in the school are collected on account of their individual powers to undergo a course of training and to represent their school on the athletic field, and the *extensive* form of athletics, in which we endeavor to get all of the student population in healthful athletic training.

In New York City we carry on the intensive form, but have emphasized strongly in recent years the more popular distribution of the benefits of athletics.

Since the organization of the Public Schools Athletic League in 1903, the incorporation of athletics as an official part of the Department of Physical Training, and the establishment of a system of medical examination of all prospective athletes, I have been unable to obtain an authentic record of damage to elementary or high school pupils as a result of athletics. Therefore, I feel constrained to recommend that the weight of medical opinion be directed not against the prohibition of athletics, but toward their proper regulation.

C. Ward Crampton, M.D., New York.
Director of Physical Training.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

HOW CHAMPAGNE IS MADE

To the Editor:—Would you kindly tell me what kind of grapes or wine is used in making champagne? I understand that a dry, white wine with a dash of cognac brandy and a little sugar is used. How is it made? J. M. White, M.D., Meridian, Miss.

Answer.—In sparkling wines, as champagne, the primary fermentation is checked at an early stage, so that a secondary or complementary fermentation may occur in the bottle, and cause the sparkle which is characteristic of this class of wine. The juice of black grapes only is used for some kinds, the skins being rejected to avoid the extraction of the coloring matter and tannin. For others red or white grapes are crushed, and, except when colored wines are desired, the juice drawn off at once to prevent the extraction of coloring matter and tannin from the skins and stalks. If a colored wine be desired, the initial fermentation is made before the juice is removed from the crushed fruit. The marc—that is, the crushed skins, etc.—is put under a screw press to remove the remainder of the juice. The latter process is now done in many manufactories by the centrifugalizing machine. The must is fermented in vats for about fourteen days, after which it is racked, the sediment allowed to deposit, and the wine put into casks until winter. It is then transferred to other casks, some finings (gelatin, albumin, kaolin, calcium sulphate, etc.) being added at the same time, and a month is allowed for it to clarify. After this it is blended, some mature wine being put into the mixture, and the amount of sugar in it ascertained. The presence of a definite amount

of sugar is necessary to insure the future sparkle. If, therefore, the amount is deficient, some syrup or sugar-candy is added. It is now bottled, and the bottles laid on their sides for a few weeks until the development of carbonic acid gas commences. The wine is then transferred to cellars, some of which are more than 100 feet deep, cut into the chalk, and admirably suited by their uniform temperature to assist in the maturation of the wine. Here it remains three or four years, during which the same changes go on as in the maturation of other wines. A deposit forms, and, as it is desirable to prevent it adhering to the sides of the bottle, it is agitated now and then. After three years the bottles are placed obliquely, so that the deposit may fall on and firmly adhere to the cork. Finally the cork is removed, and the deposit with it; the bottle is filled up with liqueur made of old champagne, brandy and sugar, and it is freshly corked and wired. The secondary fermentation now continues, during which the flavor and aroma of the wine are developed, and the effervescence and sparkle are insured.

CRITICISM OF A PRESCRIPTION

To the Editor:—Is the following prescription a good combination? Such a combination might frequently seem indicated in cases such as painful genito-urinary infection, renal or vesical, and yet the combination changes to a pasty gummy consistency. I wonder whether there is not some chemical change that would alter its efficacy. Please criticize:

Urotropin .....
Sod. Benzoat. .....
Aspirin .....ää 3i
M. et divide in chart. No. xii.

X. Y. Z.

ANSWER.—The combination is not a good one for several reasons. Hexamethylenamin (urotropin) and acetyl salicylic acid (aspirin) are chemically incompatible. However, although incompatibility exists in solution, the hexamethylenamin decomposing to yield ammonia and formaldehyd, decomposition would probably occur only to a slight extent in the dry state. Therapeutically, there seems to be no objection to the prescription, if the author sees indications in a case under treatment for the remedies mentioned. If we suppose that hexamethylenamin is used as a urinary antiseptic, its use would probably be indicated for some time. The aspirin presumably is given to relieve pain. It must therefore be considered only as a temporary remedy to be given for a special purpose, and when that purpose is accomplished, should be discontinued. It would better not be combined in the same prescription with the urinary antiseptic lest its purpose be forgotten and the drug be unnecessarily continued. As THE JOURNAL has repeatedly pointed out, hexamethylenamin should be prescribed under its proper name, and not by a copyrighted trademark. By calling hexamethylenamin by the proprietary name the physician does not insure that he will get a purer or better drug. He enhances the cost to the druggist, if not to the patient, and prevents the using of any other brand of the pure chemical which the druggist may happen to have in stock.

MILK-SICKNESS

To the Editor:—A family of six acquired milk-sickness which was traced to one cow having the trembles. Five of the family were severely affected, one dying. The father of the family was not affected by the disease. All of them excepting the father drank of the milk while it was sweet. The father used it only after it was churned, as butter and buttermilk. Please answer these questions as fully as possible:

1. Does the liberation of the acids formed by the transformation of sweet milk to buttermilk destroy the poison of milk-sickness?
2. Milk-sickness is evidently a germ disease. Tell what you can concerning its etiology.
3. What other toxemias are characterized by severe subnormal temperatures?

R. L. TALLEY, M.D., Bible Grove, Ill.

ANSWER.—1. Apparently not. There are many instances on record in which butter has been held responsible for the conveyance of milk-sickness. Probably in the case you mention the difference may have been quantitative—a smaller amount of buttermilk being used, so that the size of the dose was less than in the case of those drinking fresh milk.

2. We may refer you to a paper by Jordan and Harris appearing in the *Journal of Infectious Diseases*, September, 1909, vi, No. 4. You can probably obtain a reprint by addressing the authors.

3. Many non-infectious toxemias are associated with a low temperature, as seen in the collapse after organic poisoning, especially when there is vomiting and loss of food.

ARTICLES ON TETANUS

To the Editor:—Please advise me of any recent developments in tetanus.

C. A. HOFER, M.D., Metuchen, N. J.

ANSWER.—The following is a list of recent articles on this subject:

The Administration and Value of Tetanus Antitoxin, editorial, THE JOURNAL, Aug. 30, 1913, p. 687.
Jones, F. R.: Tetanus, *Semana méd.*, Sept. 26, 1912; abstr., THE JOURNAL, Nov. 30, 1912, p. 2014.
The Value of Tetanus Antitoxin, correspondence, THE JOURNAL, Dec. 7, 1912, p. 2084.
Irons, E. E.: Treatment of Tetanus by Antitoxin, THE JOURNAL, June 27, 1914, p. 2025.
The Serum Treatment of Tetanus, editorial, THE JOURNAL, April 11, 1914, p. 1174.
Ashhurst, A. P. C., and John, R. L.: Rational Treatment of Tetanus with Report of Twenty-Three Cases, *Am. Jour. Med. Sc.*, June and July, 1913.
Holman, C. J.: Magnesium Sulphate in Tetanus, *St. Paul Med. Jour.*, June, 1911; abstr., THE JOURNAL, July 1, 1911, p. 45.
Parker, George: Treatment of Tetanus with Magnesium Sulphate, with Report of Three Cases, THE JOURNAL, June 8, 1912, p. 1746.
Kocher, T.: Magnesium Sulphate in Tetanus, *Cor.-Bl. f. schweiz. Aerzte.*, 1912, xlii, No. 26, abstr., THE JOURNAL, Oct. 19, 1912, p. 1496.
Kocher, T., and Arnd, G.: Cure of Tetanus by Magnesium Sulphate, *Cor.-Bl. f. schweiz. Aerzte.*, 1913, xliii, No. 4, abstr., THE JOURNAL, March 29, 1913, p. 1036.

TUBERCULIN IN DIAGNOSIS

To the Editor:—1. Is tuberculin, given hypodermically, used as a diagnostic test for tuberculosis by the best clinicians at present?

2. Would it be advisable to give tuberculin for diagnostic purposes in a patient having night-sweats, in whom there is no discoverable cause for them?

ANSWER.—1. Yes. Koch's old tuberculin is used for diagnostic purposes by many of the best physicians. Some, however, regard its use as being attended by a certain risk of causing a flare up of a local focus, a danger that certainly attends the use of large doses. When used, the initial dose should be small, perhaps not more than 0.1 milligram. In the event of negative results the dose may be increased by 0.5 mg. or 1 mg. every two or three days up to a point at which even 5 mg. are given. Careful temperature records should be taken at short intervals after the injection. Otherwise no interpretation of a reaction is possible. In instances in which fever already exists, the reaction is difficult of recognition. It should always be kept in mind that a positive reaction, though showing the existence of tuberculosis, does not necessarily mean that the symptoms for which an explanation is sought are produced by the tuberculosis process that is somewhere in the body.

2. Tuberculin would probably be safe in the case described and might help in diagnosis.

CUSTOM OF YOUNGER PHYSICIANS CALLING ON OLDER

To the Editor:—In a recent discussion, the question was brought up as to whether it was correct for the new practitioner in a town to call on his fellow practitioners first, or whether they should call on him first. Can you put me right on this?

R. L. K.

ANSWER.—THE JOURNAL has replied to this question before, as follows: "It is an accepted custom for young physicians and newcomers to call on the older physicians and those of longer residence in the locality. It is a mark of courtesy and respect due from one locating in a new place. He thus announces his arrival and his desire to be recognized in professional circles and friendships." This custom must not be confused, as it appears sometimes to be, with that which governs social relations when a family takes up its residence in a new locality.

ACCIDENTS TO UNSUITABLY EMPLOYED EPILEPTICS

To the Editor:—I am preparing a paper on "Accidents Due to Epileptics Being Unsuitably Employed," or being in unsuitable places at the time of seizure, to be illustrated by photographs of patients showing resultant mutilations.

Will you kindly put me in touch through the pages of THE JOURNAL with physicians having had such patients, who would be willing to send photographs showing result of such accidents? The physicians would get full credit, names of patients would not be mentioned, and photographs would be returned.

I feel the importance of such a paper of warning on account of the number of crippled epileptics, often preventable cases too, who frequent my consulting rooms.

MATTHEW WOODS, M.D., 1402 Spruce Street, Philadelphia.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 5, 1915. Chairman, Dr. W. H. Sanders, Montgomery.

ALASKA: Juneau, Jan. 5, 1915. Sec., Dr. H. C. DeVighne, Juneau.

ARIZONA: Phoenix, Jan. 5-6, 1915. Sec., Dr. John Wix Thomas, 200 Nat'l Bank of Ariz. Bldg., Phoenix.

CALIFORNIA: Los Angeles, December 8. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.

DELAWARE: Dover and Wilmington, December 8-10. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, December 2-3. Sec., Dr. E. W. Warren, 102 Front St., Palatka.

KENTUCKY: Louisville, December 16-18. Sec., Dr. A. T. McCormack, Bowling Green.

MARYLAND: Baltimore, December 8. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown. Homeopathic, Baltimore, December 15-16. Sec., Dr. O. N. Duvall, 1817 N. Fulton, Baltimore.

MINNESOTA: Minneapolis, Jan. 5-8, 1915. Sec., Dr. Thomas McDavitt, 814 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, December 14-16. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

NEW HAMPSHIRE: Concord, December 29-30. Regent, Mr. H. C. Morrison, Concord.

NORTH DAKOTA: Grand Forks, Jan. 5, 1915. Sec., Dr. G. M. Williamson, Grand Forks.

OHIO: Columbus, December 8-10. Sec., Dr. George H. Matson.

PENNSYLVANIA: Philadelphia, December 1-3. Sec., Dr. N. C. Schaeffer, Harrisburg.

RHODE ISLAND: Providence, Jan. 7, 1915. Sec., Dr. Gardner T. Swarts, State House, Providence.

UTAH: Salt Lake City, Jan. 4-5, 1915. Sec., Dr. G. F. Harding, 407 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, December 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

WASHINGTON: Walla Walla, Jan. 5, 1915. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

Arizona April Report

Dr. John Wix Thomas, secretary of the State Board of Medical Examiners of Arizona, reports the written examination held at Phoenix, April 7, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 13, of whom 8 passed, including 2 osteopaths, and 5 failed. Licenses were issued to 4 candidates who were in active practice prior to the adoption of the law. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Indiana Medical College	(1906)	77.8
University of Maryland	(1913)	76.7
Tufts College Medical School	(1903)	75.3
Washington University	(1907)	80
Medico-Chirurgical College of Philadelphia	(1913)	76
Royal College of Physicians, Edinburgh	(1882)	68.6*
FAILED		
Chicago College of Medicine and Surgery	(1913)	72.8
Hospital College of Medicine, Louisville	(1904)	40.3
Baltimore Medical College	(1913)	70.3
Barnes Medical College	(1902)	61
University of Tennessee	(1901)	53.9

* Ten per cent. credit allowed for years of practice.

Colorado July Report

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the oral and written examination held at Denver, July 7, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, all of whom passed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado (1914) 82, 82.9, 83.5, 84.3, 84.4, 85.1, 85.9, 85.9, 87.9, 91.4.		
State University of Iowa, College of Medicine	(1914)	83.2
Harvard University	(1914)	91.6
National University of Ireland	(1911)	87.4

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Arkansas Industrial University	(1891)	Missouri
Northwestern University	(1912)	Oklahoma
Medical College of Indiana	(1893)	Illinois
Louisville and Hospital Medical College	(1908)	W. Virginia
Tulane University of Louisiana	(1908)	Louisiana
University of Michigan, Dept. of Med. and Surg.	(1907)	Michigan
St. Louis University	(1911) Illinois; (1913)	Missouri
Hahnemann Medical College and Hospital, Phila.	(1899)	Penna.
Jefferson Medical College	(1912)	Iowa
Chattanooga Medical College	(1899)	Tennessee

Indiana July Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 14-16, 1914. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 42, of whom 41 passed, including 2 osteopaths, and 1 failed. Fifteen candidates were licensed through reciprocity. The following colleges were represented.

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1913)	83.8
Chicago College of Med. and Surg. (1913) 82, 84.7; (1914) 84.2, 85.2, 88.8.		
College of Physicians and Surgeons, Chicago	(1908)	91.4
Hahnemann Med. Coll. and Hosp., Chicago (1912) 83.2, (1913)		77.1
Indiana University (1914) 81.6, 82.7, 82.8, 83.4, 84.4, 85.2, 85.7, 86.8, 86.8, 87, 88, 88.1, 88.2, 89, 89, 89.2, 89.3, 90.4, 90.7, 90.9, 92, 92.		
Medical College of Indiana	(1904)	82.8
Physio-Medical College of Indiana	(1902)	85.9
University of Louisville	(1914)	90
Marion-Sims College of Medicine	(1892)	75
St. Louis University	(1914)	89.2
Bellevue Hospital Medical College	(1892)	78.2
Eclectic Medical College, Cincinnati	(1914)	92.5
Ohio-Miami Medical College	(1914)	91
FAILED		
Chicago College of Medicine and Surgery	(1913)	62.8

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
College of Physicians and Surgeons, Chicago	(1912,2)	Illinois
Rush Medical College	(1912)	Illinois
Drake University	(1906)	Iowa
State University of Iowa, Coll. of Med.	(1912)	Iowa
University of Louisville	(1910) (1912)	Kentucky
University of Michigan, Department of Medicine and Surgery	(1908) (1911) (1912)	Michigan
Univ. of Michigan, Homeo. Med. College	(1912)	Michigan
National Normal University	(1892)	Ohio
Western Reserve University	(1909)	Tennessee
University of Pennsylvania	(1902) New York; (1912)	Penna.

Maine July Report

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 7-8, 1914. The total number of subjects examined in was 10; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 35, of whom 30 passed and 5 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Medical School of Maine (1914) 77, 79, 79, 79, 83, 84, 84, 84, 85, 87, 87, 88, 88, 88, 92.		
Baltimore Medical College	(1911)	83
University of Maryland	(1914)	81, 85
College of Phys. and Surgs., Boston	(1913) 75; (1914)	80
Harvard University	(1911) 91; (1914)	86, 92
Tufts College Medical School	(1913) 85; (1914)	80
Columbia University	(1910) 86; (1914)	91
New York Homeo. Med. Coll. and Flower Hosp.	(1888)	83
University of Pennsylvania	(1909)	92
University of Vermont	(1914)	87
FAILED		
Medical School of Maine	(1914)	72, 77*
Maryland Medical College	(1912)	74
Boston University	(1914)	74
College of Phys. and Surgs., Boston	(1913)	73

* Fell below the required average in one subject.

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
College of Phys and Surgs., Chicago	(1889)	Missouri
Medical School of Maine	(1893)	W. Virginia

Book Notices

PUBLIC HEALTH LABORATORY WORK. By Henry R. Kenwood, M.B., F.R.S., D.P.H., Chadwick Professor of Hygiene and Public Health, University of London. Sixth edition. Cloth. Price, 10 shillings net. Pp. 413, with illustrations. London: H. K. Lewis, 1914.

In this edition of Kenwood's book the summary of public health bacteriologic work, which was formerly included, has now been omitted, in order to keep the volume within the compass of a handy laboratory guide. It is devoted entirely to the chemical side of public health laboratory work. The author believes that the needs of the public health student in bacteriology are now fully provided for by several excellent laboratory books. The idea is a good one, and if authors in general were more careful to prevent duplication of material when many good text-books already exist, there would not be so many incomplete and superficial text-books on the market. In an introductory note the author discusses the various apparatus used for the examinations outlined in the rest of the book, and supplements it with tables of weights and scales. The first part of the book deals with the chemical, microscopic and physical examination of water for public health purposes; the second to an analysis of sewage; the third part to soil; the fourth to air; the fifth to food, and the sixth to disinfectants. It is complete and up to date. Every phase is taken up simply and with complete directions for making the necessary tests. In the part on food examination all the common articles of diet are considered. With this book as a guide the public health laboratory worker will be able to carry out examinations for adulteration and standardization of any products which may be brought to him for this purpose. There are eighty-seven illustrations and several large plates, which add to the complete nature of the book.

DIAGNOSIS OF THE MALIGNANT TUMORS OF THE ABDOMINAL VISCERA. By Rudolph Schmidt, Professor of Medicine in the University of Innsbruck. Authorized English Version by Joseph Burke, Sc.D., M.D., Attending Surgeon, Buffalo Hospital of the Sisters of Charity. Cloth. Price, $4. Pp. 361. New York: Rebman Company, 1913.

This work is divided into three parts. In Part 1, consisting of fifty-nine pages, are discussed the general methods of examination in abdominal conditions, general symptomatology and such etiologic factors as may be of importance in the taking of histories of malignant growths. Part 2, of 110 pages, is special and in it are discussed growths of the separate organs and regions. Part 3, of 187 pages, is devoted to case histories. The author's endeavor is to present the subject in a practical and clinical manner. Special stress, therefore, is laid on the early symptoms and on a careful and painstaking history, so conducted as to bring out the essential points. The case histories are all arranged according to a definite plan, which materially facilitates comparison and enables one to grasp more easily the relative importance of any particular factor. The arrangement of the history taking is as follows: (1) ancestry and relationship; (2) congenital peculiarities, metabolic dieases, etc.; (3) previous infectious diseases; (4) previous history of the digestive tract; (5) other previous history; (6) initial symptoms and further course; (7) objective symptomatology; (8) dates of events and duration of the disease, and (9) findings at necropsy or laparotomy. After each history is a brief critical note on the essential facts as brought out in that particular case. The author is rather conservative regarding the value of the Roentgen ray in the diagnosis of these conditions. He says: "With respect to the value of radiological examination in regard to abdominal diseases in general and gastro-intestinal affections in particular, it would seem that at the present time there are prevalent some rather exaggerated notions not only among the laity but also in the medical profession. The fact must not be overlooked that as sources of error in methods of examination radiology ranks among those that head the list." The author is very careful in his observations and exacting in his technic, yet some of the exceedingly delicate tests are often of scientific rather than of clinical value, which fact is recognized by the author, and he says: "Whoever for example utilizes large amounts of feces to obtain blood-coloring matter will have positive results oftener than he, as I recommend it, who carries out the test in a coarser way. To search for the smallest traces of blood is senseless and to no purpose." The translation is at times quite literal to the extent of making what in English are very cumbersome sentences, but there is no difficulty in arriving at the intended meaning.

THE DIAGNOSIS AND TREATMENT OF DIGESTIVE DISEASES. A Practical Treatise for Students and Practitioners of Medicine. By George M. Niles, M.D., Professor of Gastro-Enterology, Atlanta Medical College. Cloth. Price, $5 net. Pp. 507, with 87 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book is of much interest, especially because it was written by one living in the South, whence few medical monographs of its size come. The author states in the preface that he has attempted a concise, easily intelligible description of the diagnostic methods employed by stomach specialists and an exhaustive discussion of general and special therapy applied to diseases of the stomach and bowels. He has succeeded in making easily intelligible descriptions, but has not been concise. His best work is in the discussion of treatment. While the student or practitioner can gain many ideas in regard to diagnostic methods and treatment from this book, it cannot take the place of more authoritative or encyclopedic works on this subject as, for example, those of Boas, Einhorn or Hemmeter. A sufficient number of pages are devoted to the chemical and physical examination of the stomach and intestines and their contents, but the consideration of these subjects is not sufficiently detailed, and various methods are not sufficiently adjudged or valued. Too little is said of Roentgen examinations which have become important aids to diagnosis. Much is said about treatment, and most of it is judicious and commendable. Chapters are devoted, among other subjects, to local treatment of the stomach, local treatment of the intestines, hydrotherapy and psychotherapy. Only the commonest individual gastric and intestinal diseases are considered at all. The subject of the symptomatology and diagnosis of these is so briefly and unsatisfactorily considered that it is doubtful if a student without the aid of other books could make a diagnosis; certainly he would not know the natural course and fully comprehend the symptomatology of the diseases. The subject of the treatment of these special diseases is for the most part sufficiently full and detailed.

CLINICAL EXAMINATION OF THE BLOOD AND ITS TECHNIC. A Manual for Students and Practitioners. By Prof. A. Pappenheim, Berlin. Translated and Adapted from the German by R. Donaldson, M.A., M.B., Ch.B., Pathologist Royal Berks Hospital, Reading. Cloth. Price $1.25 net. Pp. 87, with 5 illustrations. New York: William Wood & Co., 1914.

"This little book differs from all others that treat of the blood in so far as it deals only with what is absolutely essential and of first importance in clinical methods of blood examination. Of the three cardinal lines of blood investigation (viz., staining, counting of cells and hemoglobin estimation) only those methods have been described which have been definitely proved of value. Coupled with the description of methods, the respective features of normal blood have been briefly discussed; while, in addition the most important facts in the semiology, necessary for a proper understanding of pathologic conditions, have been dealt with."

Owing to the recognized position of Pappenheim in the field of hematology, it is interesting to note that he recommends the combination of the May-Grünwald stain with the Giemsa stain as the most serviceable panoptic blood stain at our disposal. For hemoglobin determinations he recommends Sahli's hemoglobinometer as the most practical clinical instrument. This little work needs no recommendation beyond the name of its writer to all who wish a clear and concise outline of the essentials of hematology. While the two plates of the various types of red and white cells found in the blood are adequate for the size of this work, yet they are not sufficiently comprehensive for those who may wish to make a more elaborate study of the blood. For the latter workers Pappenheim's atlas is intended.

MANUAL OF MILITARY HYGIENE FOR THE MILITARY SERVICES OF THE UNITED STATES. By Valery Havard, M.D., Colonel, Medical Corps, United States Army, Retired. Published under the Authority and with the Approval of the Surgeon-General, U. S. Army. Second Edition. Cloth. Price, $5 net. Pp. 786, with 258 illustrations. New York: William Wood & Co., 1914.

The author says it has been found that soldiers on the march or in hard fighting campaigns, even though on scant rations, with worn-out clothing, and subjected to great exposure, are less subject to infectious diseases and sickness than when they are in permanent or semipermanent camps where they attempt to make themselves comfortable and devote much of their time to eating, sleeping and diverting themselves. Hard work and plain fare are good preservatives against disease. The main purpose of the principles and the purposes of military hygiene, therefore, is to protect the soldier against himself, his habits and his surroundings while in camp or barracks, where he spends the major portion of his time. These principles and purposes are clearly set forth in the book as they apply to soldiers on land and the naval forces, and as they relate to service in tropical and far northern climates, together with a discussion of infectious and parasitic diseases, the nutritive value of the various foods composing army rations, etc., all according to the latest ideas on these topics. The book is abundantly illustrated and contains a list of the more recent works on hygiene. At a time when military matters are actively to the fore, this book is timely, interesting and valuable.

LOCAL ANESTHESIA. By Dr. Arthur Schlesinger. Translated by F. S. Arnold, B.A., M.B., B.Ch. Cloth. Price $1.50 net. Pp. 211, with 22 illustrations. New York: Rebman Company, 1914.

This is a handy little volume devoted to the practical discussion of local anesthesia with only casual references to theory. A brief historical survey precedes a splendid exposition of the physical principles of local anesthesia. Cocain is the author's choice of anesthetic and his remarks on cocain poisoning ought to be of value to any one who makes use of cocain for producing local anesthesia. Brief mention is also made of other substances used for this purpose. Quinin and urea hydrochlorid are not even mentioned. The adjuvants in local anesthesia, especially the adrenal preparations, are discussed thoroughly. Individual chapters are devoted to the methods of local anesthesia, such as cold, infiltration anesthesia, nerve blocking and blood-vessel anesthesia, general technic, and their application in operations on the various parts of the body. For review purposes or to get the author's views on the subject, the book fills a place; but if one wishes to get a more comprehensive view of the whole subject of local anesthesia, other, larger books must be consulted.

SPECTRUM ANALYSIS APPLIED TO BIOLOGY AND MEDICINE. By the Late C. A. Macmunn, M.A., M.D. With a Preface by F. W. Gamble. Cloth. Price, $1.75 net. Pp. 112, with 21 illustrations. New York: Longmans, Green & Co., 1914.

Although spectrum analysis is often the most certain, if not the most delicate method of detecting the presence of many substances of great medical importance, nevertheless, very little use is made of such examinations by the practitioner, or even by the skilled laboratory worker. For this reason the appearance of this little posthumous monograph of Macmunn must be considered very timely. Simple perusal of this work will reveal many applications of spectrum analysis which may be employed as direct aids in diagnosis. The subject matter is divided into a preface and nine chapters, treating of the principles of spectrum analysis and their application to the study of various pigments of importance in general biology and medicine. Especial attention is given to the characteristics and differentiation of hemoglobin and its derivatives as well as of the biliary and urinary pigments. An extensive bibliography greatly enhances the value of the monograph. The book may be recommended as an extremely useful and valuable work for the general practitioner and, especially, for the laboratory investigator, who should employ the methods of spectrum analysis to a much greater extent than is customary.

TRACHOMA AND ITS COMPLICATIONS IN EGYPT. By A. F. MacCallan, M.D., F.R.C.S., Director of Ophthalmic Hospitals, Egypt. Cloth. Price, $2.50. Pp. 74. New York: G. P. Putnam's Sons, 1913.

In the home of this ancient disease the author has had abundant opportunity to study it in its various aspects. The clinical material on which the monograph is based embraces a total attendance in 1912, of 341,211 outpatients and a total number of 21,315 operations performed. More than 6,000 patients with trichiasis were turned away because of lack of equipment, but by the end of the present year there will be eight permanent and six traveling hospitals fully equipped, so that all who apply for treatment will probably be accommodated. The author has not attempted to give a complete description of all the methods of treating trachoma, but rather to give a simple description of the disease as it is encountered in the East, and of its treatment as carried out in the Egyptian ophthalmic hospitals. Following a brief historical sketch, the major portion of the book deals with trachoma in its various clinical phases, pathology, diagnosis, complications, sequelae and treatment. Statistics are given which emphasize the high percentage of cases of blindness resulting from trachoma.

DIE AEUSSERE SEKRETION DER VERDAUUNGSDRÜSEN. Von Dr. Med. B. P. Babkin, Professor der Physiologie am Institut für Land- und Forstwirtschaft zu Nowo-Alexandria. Paper. Price, 16 marks. Pp. 407, with 29 illustrations. Berlin: Julius Springer, 1914.

This work, with numerous tabulations and curves derived from experimental studies, deals with the gross and microscopic anatomy of the several digestive glands, but more particularly with their innervation, the mechanism of their operation and the work they perform. The fact that Babkin was for ten years associated with Pawlow as assistant sufficiently indicates the character of the themes discussed. Such questions as enzyme action and the chemistry of digestion are touched on "only in so far as has been found unavoidable for a proper differentiation of the several external secretions." The book collects and presents for the first time in compact form all of the later studies of the Pawlow laboratory together with a general review of the literature bearing on these subjects. The latter is extensive if not complete. It will be found valuable to American readers because of its exhaustive treatment of the not easily available Russian publications.

BEITRÄGE ZUR FRAGE NACH DER BEZIEHUNG ZWISCHEN KLINISCHEM VERLAUF UND ANATOMISCHEM BEFUND BEI NERVEN- UND GEISTESKRANKHEITEN. Bearbeitet und herausgegeben von Franz Nissl. Volume 1, Part 2. Zwei Fälle von Katatonie mit Hirnschwellung. Paper. Price, 2.80 marks. Pp., 112, with 48 illustrations. Berlin: Julius Springer, 1914.

It is the author's aim to publish the complete case histories of nervous and mental cases, their post-mortem findings, including microscopic examination of tissues, with a view of gaining more definite knowledge of the anatomic basis of nervous and mental disease. The issue before us contains the complete report, both clinical and anatomic, of two cases of catatonia, which constitutes interesting reading. Asylum physicians and neurologists will find much of value in the perusal of the histopathologic descriptions and interpretations of these two cases.

SURGICAL DISEASES AND INJURIES OF THE GENITO-URINARY ORGANS. By J. W. Thomson Walker, M.B., G.M.Ed., F.R.C.S., Hunterian Professor of Surgery and Pathology, Royal College of Surgeons of England. Cloth. Price $7. Pp. 879, with 324 illustrations. New York: Funk and Wagnalls Company, 1914.

This book, offered as a text-book for the general practitioner and the student, embodies a survey of the literature, together with much of the extensive personal experience of the author. Although containing numerous valuable cystoscopic and roentgenographic plates, in its discussion of surgical technic it seems lacking in adequate illustrative material and the detailed description which enables the student to carry out the procedures recommended. Accordingly the book may be selected as a reference work of great value but would seem to fall short of the value placed on it by the author as a text-book.

Medicolegal

Injunction Granted Against Annoyances from Hospital

(Kestner et al. vs. Homeopathic Medical and Surgical Hospital (Pa.), 91 Atl. R. 659)

The Supreme Court of Pennsylvania affirms a decree enjoining the defendant hospital, of Reading, from using its building as a hospital until the emergency operating room should be removed to some other part of the building, and also restraining the defendant from permitting persons occupying rooms in the hospital from throwing refuse matter on the complainants' premises. The court says that it was found that the complainants' building had twenty-one windows and nine doors facing the hospital, the windows and all the doors, except two, being from 9 to 12 feet distant from the hospital. The rooms facing the hospital included the parlor, living room, dining room, kitchen, pantry and summer kitchen on the first floor, and sleeping rooms on the second floor, the dining room being less than 13 feet from the emergency operating room. A wooden fence about 9 feet high separated the two yards. Noises came to the complainants' property from the hospital, mostly from the emergency operating room, almost daily, and at all hours of the day and night. The trial judge also found that the hospital was equipped with the modern surgical and medical appliances, employed sufficient physicians and nurses, and used with promptness approved methods of relieving patients from pain and suffering and of preventing the outbursts complained of. Also that shrieks and screams were of no greater frequency than those emanating from well-regulated hospitals treating the same number of patients; that such noises are bound to occur wherever sick or injured persons may be, and particularly in a hospital where a large number of persons are brought, or come, for medical and surgical treatment. The court holds that, under the authorities, the complainants were clearly entitled to equitable relief, such as was granted.

Requirement in Prosecution for Practicing Medicine Without Authority

(Feige vs. State (Okla.), 142 Pac. R. 1044)

The Court of Criminal Appeals of Oklahoma reverses a judgment against Feige, who had been convicted of practicing medicine without first having procured a proper certificate as provided by law, and had been fined, the case being remanded to the county court with directions to cause a proper information to be filed and the trial proceeded with as provided by law. The court says that, under Section 6910 of the Revised Laws of Oklahoma of 1910, a person who prescribes or administers any drug or medicine, included in the materia medica, for the treatment of diseases, injuries, or deformities of human beings is subject to prosecution. Likewise, one who is not licensed to practice medicine as provided by law can be prosecuted for publicly professing himself to be a physician and prescribing for the sick. The information, however, should be direct and certain as to which of these provisions the state is prosecuting under.

The information in this case charged that Feige did, in Oklahoma County, on May 28, 1912, commit the crime of practicing medicine without a license in that he did then and there unlawfully, etc., practice medicine without first having obtained from the state board of medical examiners a certificate as provided by law, entitling him to practice medicine within the state of Oklahoma, in that he did then and there unlawfully and willfully prescribe for, and furnish medicine to, and treat one Cornelius A. Prohl, for compensation, contrary to the form of the statutes, etc. The information on its face was wholly insufficient. It should have charged, among other things, the administration of some drug included in materia medica in the treatment of diseases, etc., or that the accused publicly professed to be a physician and prescribed for the sick.

This prosecution was meritorious, but this court cannot overlook a fundamental right. The trial court should have arrested the judgment and directed the prosecuting attorney to file a proper information, when a motion was made in arrest of judgment, as an information which fails to state a public offense under the statute is subject to attack by a motion in arrest of judgment.

Miscellany

Trachoma in the Mountain Sections of Eastern Tennessee and Northern Georgia

A survey of the prevalence of trachoma in the mining and mountain rural sections of the Appalachians traversing Tennessee and Georgia, made under the direction of the Surgeon-General of the United States Public Health Service and in cooperation with the state boards of health of Tennessee and Georgia, is described in *Public Health Reports* for September 18. The work was begun in eastern Tennessee in December, 1913, and concluded in northern Georgia in April, 1914. The object was not to detect every case of trachoma, but to outline the areas of infection by examination of a representative number of persons in each county, to devise means for its control and ultimate eradication, and to arouse the medical profession and the public to a sense of its importance.

It was found impracticable to conduct house-to-house inspections, because of the time consumed and the impossibility of finding adults willing or able to spare the time to be examined. The examinations were therefore confined almost exclusively to schoolchildren. In Tennessee 130 schools distributed through thirty-one counties were visited and over 15,700 pupils and instructors examined; 341 cases of trachoma were found. In northern Georgia eighty-four schools distributed through twenty-five counties were visited and over 7,800 pupils and instructors examined; seven cases of trachoma were found. The attention of county health officers and local physicians was drawn to the disease wherever it was found. Only positive cases presenting clinically characteristic connective tissue hyperplasia with lymphoid cell proliferation, destruction of the overlying conjunctiva and scar tissue formation were considered as trachoma, suspicious cases (probably incipient trachoma) were not included in the statistics. The type of trachoma found in Tennessee and Georgia was, in the main, less severe than that found by Surgeon McMullen in the survey of Kentucky. Negroes, though not immune, appeared to be less susceptible to infection than whites. The foreign population of the state is small and this element is believed to be a negligible factor in the spread of the disease.

Physical Condition of Chinese Students

The Yale Mission, Changsha, China, has examined all the students of the school under the same system as that used at Yale. The percentages of medical examinations were the following: The general physical condition of 25 per cent. was poor, while that of 53 per cent. was only fair. In muscular development the percentages were: poor, 39 per cent.; fair, 41 per cent.; good, 20 per cent. Nutrition and fatty tissue were subnormal in 27 per cent. and only fair in 46 per cent. Examinations for digestion showed 33 per cent. poor, 25 per cent. fair and in 74 per cent. the presence of Ascaris eggs. Unhealthy conditions in the respiratory system were noticeably prevalent. The vision of 40 per cent. was defective. In the circulatory system a thickening of the vessels was noticeable in 49 per cent., which is abnormal for an average of 18 years, 6 months. Thirteen per cent. had some enlargement of the heart, while 20 per cent. had either murmurs, or other signs of irritability. Beginning at 5 feet 2 inches, comparisons were made between the Yale students and those of the Chinese mission at nine intervening heights up to 5 feet 8½ inches and the differences in measurements for all heights were averaged. Chinese students average less than Yale students in most measurements. The results indicate that the physical condition of the Chinese people generally is defective.

Society Proceedings

COMING MEETINGS

American Association of Anatomists, St. Louis, Dec. 28-30.
American Physiological Society, St. Louis, Dec. 27-30.
Amer. Public Health Association, Jacksonville, Fla., Nov. 30-Dec. 5.
Medical Society of Hawaii, Honolulu, Nov. 28-30.
Society of American Bacteriologists, Philadelphia, Dec. 29-31.
Southern Surgical and Gynecological Assn., Asheville, N. C., Dec. 15-17.
Western Surgical Association, Denver, Dec. 18-19.

NEW YORK NEUROLOGICAL SOCIETY

Meeting held Oct. 6, 1914

The President, Dr. Smith Ely Jelliffe, in the Chair

Double Cervical Rib Nerve Symptoms

Dr. S. P. Goodhart and Dr. Alfred S. Taylor: The patient was a woman, aged 30. Symptoms referable to the cervical ribs dated apparently from the eighth year. During her eighteenth year she noticed that certain movements necessitating placing the arm behind her caused flexor spasm of the muscles of the forearm and hand. When the patient was 23 years old she observed weakness in the grasp and in the finer movements of the left hand, followed by progressive atrophy of the small hand muscles, both the thenar and hypothenar surfaces being involved. Soon afterward a coldness of the left upper extremity, particularly from the elbow to the finger tips, was at times felt subjectively and could be demonstrated objectively. Examination revealed areas of hypesthesia and hyperalgesia distributed irregularly over the left forearm and hand. These areas varied and finally disappeared, leaving as the only sensory disturbance an area of hypesthesia for all forms of sensation in that part of the forearm and hand corresponding to the inner cord of the brachial plexus, particularly the ulnar distribution. At this time the left hand presented an appearance of the typical *main en griffe*, and some atrophy of the pectoral muscles was noted. Cervical ribs were now recognized. About 1907, involvement of the brachial plexus on the right side developed. Within the next few months numbness of the entire right leg and pains in the calf muscles were experienced. In May, 1908, the patient submitted to an operation for the removal of both false ribs. The subclavian artery crossed the first rib anteriorly and below the distal end of the cervical rib, the roots of the plexus lying over the false rib. The eighth cervical and first dorsal roots were undergoing the greatest tension and pressure. Immediately following the operation there was a paralysis of nearly all the muscles and the sensory surfaces supplied by the plexus on both sides. In the course of a week, motion and sensation began to return, and the improvement, though slow, was constant. About one year after the operation there was still considerable atrophy and very slight sensory changes over the inner surface of the forearm. At the present time, about six years after the operation, there is marked improvement in the muscle supply.

Spinal Hematomyelia of the Hemiplegic Type

Dr. Frederick Tilney and Dr. C. L. Nichols, Brooklyn: The patient, a man aged 28, while diving in shallow water, fell into the water almost perpendicularly. He thought he struck the sandy bottom on his head, neck or on the vertex, posteriorly. He had to be dragged from the water and was found to be suffering from a complete paralysis of the right upper and lower extremities, and an awkwardness in the use of the limbs on the opposite side. There had been no loss of consciousness and he was perfectly oriented. His head was numb and the whole body felt bruised and sore. The pain was most severe over the right shoulder, extending down the arm and forearm. There were no spasmodic movements in this area. Several hours after the injury he still complained of the sensation of having been bruised, especially over the right clavicle and upper chest. The right pupil was smaller than the left: both responded to light and accommodation. The heart's action was slow and regular and the sounds of good character. The pulse was of fair quality and volume. The abdomen showed no abnormalities. No reflexes could be elicited on the right side, and sensation was absent, with the exception of variable areas of response to pin prick. The field of vision was undisturbed. The fundus showed slight congestion of the nerve; the margin was not well defined and the vessels were slightly engorged, evidencing some pressure. The hearing was affected on both sides. One week later, the anisocoria was still more apparent. Two weeks later he was allowed to sit in a chair and ten days after that he was able to walk.

On the first day after his discharge he had an agonizing pain on the right side of the head over an area extending from the forehead along the vertex in the median line to the occiput. This persisted for two hours. A similar attack, less severe, followed a week later. After the patient had been seated for any length of time he became stiff in the right hip, and on arising had a dull pain extending from the lower part of the spine forward into the right groin. He also complained of a similar pain extending from the cervical spine to the right shoulder. There were no urinary symptoms. The bowels had moved regularly ever since the accident. Examination at the present time shows a flaccid paralysis of the right upper extremity and a spastic paralysis of the right lower extremity. The tendon reflexes on this side were greater than those on the left, while the abdominal, epigastric and cremasteric reflexes were absent. The latter were present on the left side. The Babinski was positive on the right side, and there was permanent clonus in the ankle. In eliciting the triceps reflex on the right side, percussion on either the tendon or the muscle produced flexion of the forearm instead of extension. The roentgenogram showed a fracture of the sixth cervical vertebra.

Case of Spinal Hematomyelia: Brown-Séquard Paralysis

Dr. Tilney and Dr. Nichols: The patient, a boy of 20, fell a distance of about 10 feet, striking the ground on his chest without losing consciousness. None of the extremities could be moved voluntarily. The pupils were equal, and reacted naturally. The pulse was regular and of good volume. The heart sounds were normal. The respiration was chiefly abdominal, the chest moving very little. The arms could be moved, though very slowly and with great difficulty. The fingers were held in a position of partial flexion, with no power either to flex or extend them. The knee-jerk was absent on the right side and present on the left. The Babinski could not be elicited. The toes of the right foot were red; those of the left were pale, and the surface temperature of the left lower extremity was diminished. There was an absence of the cremasteric reflex. There was tactile anesthesia in both lower extremities and in the trunk up to the second interspace. Pain sense was absent in the left leg and as far up as the third rib, but present over a corresponding area on the opposite half of the body, where it was apparently hyperacute. The temperature discrimination was entirely absent on the left side to a level a little below the clavicle, but was present on the right side, although the response to heat was not so good as to cold. There were sticking pains in the right leg, and the patient felt as though there was a strap around it and another around the shoulders, each being tightened in an opposite direction. There were fibrillary tremors on the left side. Priapism was present during the examination. Catheterization showed no evidence of hematuria. One month later the patient had a slight power of flexion of the left fingers. Sensation was unchanged. The pupils reacted promptly, but were unequal. The patellar reflex on the right side was exaggerated. One week later there was an involuntary urination. Up to that time catheterization had been necessary, but from that time on the control of the bladder was normal. The lesion in this case was located in the upper cervical region. The roentgenogram demonstrated absence of fracture or dislocation.

DISCUSSION

Dr. William M. Leszynsky: In cases of traumatic lesions of the cord the question of operation usually comes up, and I have been guided largely by the clinical manifestations. If it can be shown that we were dealing with a fracture dislocation producing crushing of the cord, an operation is inad-

visable. When blood is found in the cerebrospinal fluid, the hemorrhage is usually subdural. When the cerebrospinal fluid is clear, as in hematomyelia, operation is not indicated. In many of these cases the early residual symptoms often become permanent, their severity depending on the amount of damage done to the cord. It is impossible to give a positive prognosis as to the ultimate outcome.

DR. BENJAMIN ROSENBLUTH: I have seen four cases of injury of the cauda equina, and the result of operation was most encouraging.

DR. J. F. TERRIBERRY: In cases of hemorrhages within the cord, little can be expected from operative interference. These cases, as a rule, do much better under proper general care, with subsequent reeducation of the lost muscular function if the residual symptoms demand it. The fact should be borne in mind that this loss of function is sometimes attributable to a stiffening of the joints of the hands and fingers, which often does much to retard the reparative process, and it was only with care and perseverance that one could get the most out of these cases.

MEDICAL SOCIETY OF VIRGINIA

Annual Meeting, held in Washington, D. C., Oct. 27-30, 1914

The President, DR. SOUTHGATE LEIGH, Norfolk, in the Chair

Officers Elected

The following officers were elected for the ensuing year: president, Dr. Samuel Lile, Lynchburg; vice-presidents, Drs. Samuel B. Moore, Alexandria, Joseph T. Buxton, Newport News, and Dr. J. W. Preston, Roanoke.

Place of meeting, session of 1915, Richmond.

SYMPOSIUM ON GOITER

Causes of Thyroid Diseases

DR. R. M. TALIAFERRO, Lynchburg: The endemic form of goiter is believed to be the lack of something, mineral or albuminoid. It is asserted that the addition of Lugol's solution to the water-supply will cure. No country is exempt. It is closely associated with the generative organs in females; puberty, menstruation, menopause and especially pregnancy especially seeming to have some influence. Various toxemias have been associated, and there seems to be an effort of the body to have the metabolism meet the toxins.

Pathology and Symptoms

DR. J. C. FLIPPIN, Charlottesville: The high percentage of iodin in the thyroid is very important. The thyroid of the fetus and the suckling animal probably contain no iodin. The iodin percentage is below normal in the diseased gland, while in exophthalmic goiter it is as much as 80 per cent. above normal. A certain relation to the other internal secretions exists. The epinephrin content is increased in exophthalmic goiter.

Medical Treatment

DR. GEORGE W. MCALLISTER, Hampton: Iodin in the sporadic form gives the best results. No one factor is of so much importance as rest in the open air. I have been disappointed in the action of the extracts of ductless glands. Parathyroid sometimes controls the tremor. As to the benefit from the use of serums from thyroidectomized animals, testimony is conflicting.

Surgical Treatment

DR. J. S. HORSLEY, Richmond: Surgical treatment is of value in simple cases, malignant cases and in hyperthyroidism. In the hands of a competent man the mortality in simple cases should be less than 1 per cent. Surgical treatment is now practically limited to tying one or more arteries or to thyroidectomy. Two rules are of prime importance: Avoid exciting the patient, and use careful manipulations.

DISCUSSION

DR. TOM WILLIAMS, Washington, D. C.: Enlarged thyroids may be due to toxemias, the result of multiple infections. I do not believe that it is always wise to remove the gland. The Roentgen ray inhibits the action of the gland and renders the patient comfortable.

DR. ALLISON HODGES, Richmond: In the majority of cases we are wasting time by using medical measures. Of twenty-two patients only four were definitely improved in from three to eight weeks. Of the other patients twelve were operated on by surgeons, and eight were cured while four were partly cured. I am not anxious to submit these cases to the surgeons, but we should do what is best. The surgical cases in which there was no improvement were those in which excessive anxiety was associated. Do not protract medical treatment.

Calcification and Ossification of Walls of Heart

DR. HARRY T. MARSHALL, University: A man died of heart failure. During life he had a murmur and myocardial insufficiency. The heart was much enlarged, hypertrophied to the left and both dilated and hypertrophied to the right. The left auricle was encased in a firm calcified sheath, which could not be collapsed by pressure. The muscle was unaffected. The endothelium was thickened from 1 mm. to half an inch, with ridges on the lining looking like loose bone. Lacunae and osteoblastic cells were to be seen, and unmistakable bone-marrow.

Psychoneuroses in Their Relation to Chronic Infections

DR. ALLISON HODGES, Richmond: Physicians do not always respect such influences as heredity and environment. A number of morbid conditions are apparently functional. Study the personal abnormalities of the patient. They have either a psychogenic or a somatic basis. In all cases that I have records of there is the element of heredity. There is physical suffering in the psychoneurotic, properly speaking. I have not found organic troubles to be a cause as often as I had anticipated. Woman is especially apt to think the uterus is the cause, and if this is so stated by the physician she is confirmed in her distress. Urethra and seminal vesicle disease in the male is likewise a source of disturbance. Gastro-intestinal disturbances are an unquestionable cause of psychoneuroses. Gall-bladder infections play only a minor part. The large majority of these troubles are purely in the brain. Rational treatment is the removal of the cause.

Use and Abuse of Pituitary Extract in Labor

DR. VIRGINIUS HARRISON, Richmond: The forceps is not abused so much as formerly. Posterior lobe extract has been brought forward as a substitute for forceps. This drug has been standardized. This is important, for we may be using 1 or 2 mg. to the dose. If much chloroform is given before its administration, the effect is lessened, but if chloroform succeeds it the effect is increased. I have never seen it take more than six minutes before having effect, and this effect lasts from thirty to sixty minutes. If necessary, try the second dose in one hour; if no results, then use other methods. Twenty per cent. of my patients had bowel action without using a laxative. One patient had marked angina pectoris in two minutes; it passed off quickly. One child had convulsions, but they may have been due to injury to the head. It made a good recovery. The contra-indications are normal labor with good pains, high blood-pressure with arteriosclerosis, undilated cervix, and tumors. It will not start pains but will intensify those present. It shortens the third stage of labor, and prevents hemorrhage when given after the delivery of the child. It is capable of doing great damage to the soft parts and to the child. Its action is very prompt and the doctor should be prepared for emergency. Uterine inertia is the thing that will make us use it most frequently. It will convert a high forceps case into a low forceps case. Engagement should occur before it is given. It makes instrumental work easier. It prevents shock and post-partum hemorrhage, and makes anesthesia less in quantity. I have used forceps only three times in my last fifty cases; in my previous fifty cases I used them twelve times. I cannot agree with those who say we must not give it to primiparas; my best results have been with them. I have never seen a child born dead when this agent was used.

DISCUSSION

Dr. Leslie B. Wiggs, Richmond: There are two active principles in the posterior lobe, one a uterine-contracting and the other a blood-pressure raising agent. I think it will inaugurate contractions.

Dr. Greer Baughman, Richmond: I have had three failures; two of these were occiput posterior cases. I use fractional doses, half a decigram, and in half hour another half. I believe it is a substitute for forceps. The os must be completely dilated. It is a dangerous remedy when used wrongly. Passage and passenger should fit.

Dr. J. F. Winn, Richmond: It is a dangerous remedy. I recall a case of rupture of the uterus from this agent, followed by immediate death. We should diagnose accurately the cause of delay before using it. Do not blame a good thing if you do not know how to use it. I have not used it as much as Dr. Harrison has. If there is definite indication for the use of forceps, and you know how to use it, why not use the forceps? Do not take chances.

Dr. W. E. Anderson, Farmville: I class pituitary extract with the knife. It is more important to know when to use it than how. It does not take the place of forceps. You may have better results with forceps than with pituitary extract.

Dr. Virginius Harrison, Richmond: Ergot and pituitary extract are not the same in action and they may be combined in certain cases. There are eight preparations on the market, and we may be using the strong when we think we are using the weak.

Sarcoma of Both Ovaries in a Child of Three Years

Dr. F. H. Smith and Dr. J. C. Motley, Abingdon: A white girl, aged 3 years, giving a history of nausea and vomiting, had a mass in the abdomen, thought to be due to worms. There was great distention unless the bowels acted thoroughly. No fever was noted at any time. In the right iliac fossa was a mass that might have been the appendix. She had a history of having been butted in the abdomen by a goat. Later a mass was found in each iliac region, hard and doughy, not tender. Rectal examination disclosed that there was no connection between the two. Operation was done to relieve what was thought to be intestinal obstruction. Both tumors were removed and found to be sarcoma of the ovary. Five months later the child had an abdominal tumor, in fact several tumors. Death ensued within sixty days.

Caring for Premature Infants

Dr. S. G. T. Grinnan, Richmond: Aeration by osmosis should be tried when ordinary means to revive do not avail. The less the weight the more rapid is the loss of heat. Acid blood is found in premature infants. The electric pad gives uniform heat. Pure air is necessary for the lungs. Temperature must be kept at 90 degrees. Fatty soap is the best. Do not try to cleanse the mouth. Whey may be used when breast milk cannot be had. Evaporated, not condensed, milk may be used.

DISCUSSION

Dr. W. L. Harris, Norfolk: A home-made incubator is what has served me best, a rather deep padded box, with a hot-water bag. These children should not be shocked, and I think they are often killed by bathing. Start the nourishment early. Get milk from another woman if the mother cannot furnish it. Feed the baby according to what it can take. You may have to feed it with a medicine dropper, and ten or twelve times in the twenty-four hours.

Necessity for Study of Fetal Heart Sounds in Placenta Praevia

Dr. Greer Baughman, Richmond: Inability to hear the sounds is generally due to listening at the wrong place or to a dead fetus. The two portions of the fetus transmitting the sounds best are the chest in front or behind over the region of the heart. The fetus gasps because of peeling off of the placenta. The same thing may happen if the cord be compressed intra uterum. Then the fetus breathes in amniotic fluid. The sounds are hard to hear during uterine contractions.

DISCUSSION

Dr. A. T. King, Washington, D. C.: I have looked over the United States census statistics and I find 1,200,000 home obstetric cases to 100,000 hospital cases. This by the way of emphasizing the importance of home obstetrics. Why not give salines under the skin of the child? It is suffering from hemorrhage as well as asphyxia.

Chronic Catarrhal Otitis Media

Dr. C. R. Dufour, Washington, D. C.: Many suicides occur because of terrible noises in the head, beginning insidiously, with a sense of stuffiness. The patient thinks it is due to ear-wax. The noises are worse at night, and affect one ear or both. The disease is progressive and rarely clears up of itself. It does not yield readily to treatment. Six months is not too long to treat. Iodin and oils vaporized in the middle ear are good.

DISCUSSION

Dr. George J. Tompkins, Lynchburg: The general practitioner is apt to overlook adenoids. I recall a case in which I found adenoids in which the family physician was satisfied there were none. I was convinced that they caused the trouble.

Dr. W. E. Driver, Norfolk: Deafness due to local conditions in the throat is too simple to talk about. Diseased tonsils and adenoids should be removed. The common idea that you can take your finger and scratch out adenoids is barbarous. The eustachian tube is sometimes permanently stopped by cicatricial contraction.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

November, CXLVIII, No. 5, pp. 625-780

1 *Ultimate Results Secured from Surgical Intervention in Cases of Cholelithiasis. J. G. Clark, Philadelphia.
2 *Clinical Study of One Thousand Cases of Cancer of Stomach. J. Friedenwald, Baltimore.
3 Some Clinical Aspects of Gastric Hemorrhage. J. A. Lichty, Pittsburgh.
4 *Laboratory Diagnosis in Early Stages of Congenital Syphilis. C. G. Grulee, Chicago.
5 Modern Methods of Treatment of Syphilis of Nervous System. B. Sachs, I. Strauss and D. J. Kaliski, New York.
6 Heart Syphilis: Report of Case. G. R. Callender, U. S. Army.
7 Duodenal Ulcers in Infancy. Report of Five Cases. B. S. Veeder, St. Louis.
8 Effects of Heredity in Bovine Tuberculosis. H. Brooks, New York.
9 *Examination of Urine for Tubercle Bacilli. J. W. Churchman, New Haven, Conn.
10 *Albumin in Sputum in Tuberculosis: Its Value in Diagnosis and Prognosis. C. H. Cocke, Asheville, N. C.
11 Personality Study of Epileptic Constitution. L. P. Clark, New York.

1. **Ultimate Results in Cases of Cholelithiasis.**—From a review of 160 cases Clark concludes that simple drainage is all that is necessary in cases of cholelithiasis in which there are no symptoms attributable to the presence of the stones. When the gall-bladder is thickened or greatly dilated, or if it is the seat of the so-called "strawberry change," as described by Moynihan, cholecystectomy should be the operation of choice. Of fifty-five gall-stone operations not associated with other gynecologic or abdominal conditions, 90 per cent. of results were traced. No patient returned for a second operation, and none had been operated on elsewhere. Of this number 69.5 per cent. were cured, 15.2 per cent. were greatly improved, and 2.1 per cent. were not improved. Of the entire number, 8.6 per cent. died after leaving the hospital from extraneous conditions not connected with the surgical operation.

Of seventy-seven cases of cholelithiasis with symptoms associated with other abdominal or gynecologic lesions 78 per cent. were traced; 59.7 per cent. were cured, 17.5 per cent. were greatly improved, 1.7 per cent. were slightly improved,

and 8.7 per cent. were unimproved. Since leaving the hospital, 3.5 per cent. died of intercurrent diseases not connected with the biliary operation. Of thirty-one cases of cholelithiasis without assignable symptoms associated with other abdominal or gynecologic conditions 86 per cent. of the patients were traced, 64 per cent. were cured, 16 per cent. were greatly improved, 4 per cent. were slightly improved and 8 per cent. (2 cases—both excessively neurotic) were worse than they had been before operation. It is specially noteworthy that in the second class of cases, in which there were unquestionable symptoms of diseases of the upper abdominal organs, in 13 there were visible changes in the appendices, ranging from mild to acute inflammations. Thus the error in diagnosis falls chiefly between appendicitis and cholecystitis. In several of these cases the condition of the appendix gave rise to the acute symptoms which had precipitated the operation.

From this analysis Clark learned that the worst results occur among the combined cases in which there are manifest symptoms due to biliary changes. The ratio of the cures is in direct proportion to the severity of the symptoms. The weight of evidence most emphatically favors the early removal of gall-stones. The mortality will be small, the proportion of cures large and the hazard of a return of the patient to the hospital for a second operation slight. In the light of the results secured in this large series of cases Clark believes that his stand of a decade ago, which favors the removal of gall-stones associated with other gynecologic or abdominal lesions, whether they are producing symptoms or not, is amply sustained.

2. **Cancer of Stomach.**—The 1,000 cases of cancer analyzed by Friedenwald occurred in 10,416 patients affected with various gastric disturbances (9.6 per cent.); the maximum liability to the disease lies between the fortieth and sixtieth year (65 per cent.); the greater proportion of cases occur in males; 588 males to 412 females. An hereditary history of cancer appearing in various portions of the body occurred in 104 of the 1,000 cases (9.4 per cent.). A definite history of trauma was elicited in 19 cases, in 6 of which there had been blows on the abdomen. In 229 cases in which hemoglobin estimations had been recorded, anemia was present in 189 (82 per cent.). The average of the hemoglobin estimations was 43. Chronic endocarditis was present in 114 cases (11.4 per cent.); arteriosclerosis in 696 (69.6 per cent.) of all cases. Of the 132 cases in which blood-pressure examinations were recorded, 121 (91 per cent.) present readings of 170 mm. or more. Albumin was present in 401 (55.9 per cent.), and albumin and casts in 334 (46.4 per cent.).

In the 1,000 cases of cancer there was a history of some previous digestive trouble in 232 cases (23.2 per cent.). Seventy-three cases gave a definite history of former gastric ulcer. A history of former indiscretions in diet was obtained in 321 instances (32.1 per cent.); a history of alcoholism was obtained in 152 instances (15.2 per cent.). A history of syphilis was obtained in 79 instances; tuberculosis of the lungs was present in 48 instances. Over 89 per cent. of the cases presented an entire absence of free hydrochloric acid. Lactic acid was present in 601 instances, or 81.9 per cent. of the 733 cases in which the gastric secretion was examined. The Oppler-Boas bacillus was observed in 582 cases, or 79.3 per cent., of the 733 cases. It was found only in those instances in which lactic acid was observed. Sarcina were observed in 24 instances (32 per cent.). Visible blood was observed in the gastric contents in 129 instances (7.5 per cent.). Coffee-ground contents was obtained in 653 instances (61.8 per cent.). Roentgen-ray examinations were made in 32 instances, 8 cases presenting cancer at the cardiac region and 24 at the pyloric region. Anorexia and vomiting are most prominent symptoms, being present in 89 per cent. of cases. Hematemesis is present in 25 per cent. of all cases and melena in 19 per cent. Occult blood appears in the stools in 92.5 per cent. The tumor was sufficiently advanced to be palpable in 72 per cent. of cases, but only in 30 per cent. of these cases within a half year of the first appearance of symptoms, while in 60 per cent. of cases this symptom was manifested after the first six months. Clinically in 60 per cent. of cases the cancer is located at the pyloric area, in 7 per cent. at the cardiac area, and in 30 per cent. there is a general involvement.

Operations were performed in 266 instances (26.6 per cent.). Of these 138 (51.8 per cent.) were exploratory operations. Gastro-enterostomies were performed in 98 (36.9 per cent.); gastrostomies in 25 (7.8 per cent.), and pylorectomies and gastrectomies in 9 (3.3 per cent.). Of these there is not one patient living. It is therefore evident that the early diagnosis of cancer of the stomach is still fraught with difficulty, and that until more certain methods are available exploratory incisions should be urged on all persons over 40 years of age having gastric symptoms which are not relieved after a few weeks' treatment, especially is this the case if there be some loss of flesh, an absence of free hydrochloric acid in the gastric contents, and occult blood in the stools. Inasmuch as in a certain proportion of cases gastric ulcers become cancerous, it is well in all operations for gastric ulcers to consider the advisability of performing excision or partial gastrectomy to prevent possibility of the transition of ulcer into cancer.

4. **Laboratory Diagnosis in Congenital Syphilis.**—According to Grulee there is no test which is proved to be pathognomonic of congenital syphilis in the early stages between the birth and the development of active symptoms. The Lange gold chlorid reaction on the cerebrospinal fluid offers at present some hope that the evidence obtained in this way may be of distinct benefit. The Noguchi luetin test has a distinctly negative value, inasmuch as in all cases not syphilitic the reaction was negative.

9. **Examination of Urine for Tubercle Bacilli.**—The important point brought out by Churchman is the fact that in vesical tuberculosis, if the ulcer is on the vault of the bladder, in which it is seldom or never reached by the small amounts of urine present there at any one time, tubercle bacilli may quite readily be absent from the urine, or at least not present in great number. In such cases, therefore, and indeed in all cases of vesical tuberculosis one should add to the catheterized urine to be examined for the organisms, washings from the bladder surface. In obtaining these washings it is advisable to allow fluid to flow in until the bladder is distinctly distended, so as to obtain material from its whole surface.

10. **Albumin in Sputum in Tuberculosis.**—Cocke has collected from the literature the results of the analyses of 3,951 cases in all stages (not including 20 of his own), in which there was a positive albumin reaction in the sputum in 3,778, or 95.6 per cent. These cases were all definitely known at the time or later proved to be tuberculosis, so that the conclusion is inevitable that the large majority of all cases of tuberculosis show a positive albumin reaction in the sputum.

Archives of Pediatrics, New York

October, XXXI, No. 10, pp. 721-800

12 *Some Manifestations of Influenza in Young Children. L. E. Holt, New York.
13 *Causes and Treatment of Eczema in Infancy and Childhood. R. G. Freeman, New York.
14 Recurrent Bronchitis in Children. C. G. Kerley, New York.
15 Effect of Sugars on Gastric Secretions in Infants. D. H. Sherman and H. R. Johnes, Buffalo.
16 Boston Floating Hospital. J. H. Young, Newton, Mass.
17 Roentgen Ray as Diagnostic Help to Pediatrist. L. E. La Fétra, New York.
18 Three Cases of Diabetes Mellitus in One Family. C. G. Moore, Schuyler, Neb.

12. **Manifestations of Influenza in Young Children.**—One thousand six hundred and fifty sputum cultures made from 1,053 patients during the winter and spring seasons of the past five years period showed that the influenza bacillus was present in from 32.5 to 42 per cent. of the cases. Holt believes that this accounts for many obscure symptoms seen in these patients. On two successive days in April sputum cultures were made from all the hospital inmates—doctors, nurses and patients. Of 90 persons examined, 31 showed the presence of influenza and 3 others had shown it previously, making a total of 34 infected persons, or 38 per cent.

The most marked prevalence of influenza was in the wards in which the patients with bronchitis and pneumonia were received. In two such wards, containing 21 patients, 10 had influenza. Of 8 nurses in attendance in these wards, 5 showed influenza. Six of the patients were suffering from bronchopneumonia, 3 others previously had slight temperatures not explained by the other symptoms present; a fourth patient, one of tuberculous meningitis showed only a few influenza organisms. Two nurses had no symptoms suggesting influenza infection, but one shortly after the culture was taken developed a severe cold; the other three were suffering from catarrhal symptoms of various degrees of severity.

A nurse in charge of a special ward containing 3 children who were suffering from influenza, showed the organism in the sputum. She had previously suffered from a mild cold. Of the remaining 25 nurses in the hospital only 4 showed the *B. influenza*, and 3 of these had suffered from colds or a nasopharyngeal infection. The resident physician had a severe paroxysmal cough and his sputum showed great numbers of influenza bacilli. Of 10 cases of pneumonia in the hospital at the time of the routine examination the sputum of 8 showed the *B. Influenza*. Of 8 children admitted with pneumonia during the week following, 5 gave positive influenza cultures. Since the number of children admitted with influenza is so large the presumption is that the nurses contracted it from these children and then possibly spread the infection to others.

An unusual prevalence of influenza has been noted in some other institutions in the city in which careful sputum cultures have been made. Dr. Swift of the Rockefeller Institute Hospital informed Holt that of 13 pneumonia patients during the first three weeks of April, 8 showed the presence of the *B. influenza* in the sputum cultures. Holt regards the want of correspondence between the general symptoms and the temperature as quite diagnostic. He knows of no disease in which such high temperatures are seen with so few general symptoms as in influenza.

13. **Causes and Treatment of Eczema in Infancy.**—Freeman believes that the eczema of infancy and early childhood, which is occasionally due to external irritation, is usually due to gastro-enteric derangement and must be attacked primarily by correcting that derangement. The food should be cut down to caloric requirements, the ration should be balanced and digestion aided. Stewed fruits and cream should be prohibited. The parts affected should be kept well covered with non-irritating applications.

Boston Medical and Surgical Journal

November 12, CLXXI, No. 20, pp. 731-766

19 *Cancer of Uterus. Possibilities of Cure by Radical Abdominal Operation. F. Cobb, Boston.
20 *Cancer of Rectum. D. F. Jones, Boston.
21 *Cancer of Bladder. A. L. Chute, Boston.
22 Cancer of Prostate. H. Binney, Boston.

19. **Cancer of Uterus.**—In a series of 49 simple abdominal hysterectomies done by numerous men and referred to by Cobb there was an immediate mortality of over 34 per cent. and only 19 per cent. of cures. He concludes from these figures that an abdominal hysterectomy which makes no attempt to dissect the ureters and remove the parametrium, to say nothing of the pelvic glands, cannot be advocated as a safe or reasonable operation for cancer of the cervix because it exposes the patient to increased danger from shock, hemorrhage and peritonitis without making any wider removal of the disease and its lymphatics than in the simple vaginal hysterectomy. There were 40 radical Wertheim hysterectomies including 23 of Cobb's personal cases, with an immediate mortality of 22 per cent. and 50 per cent. of cures. In addition there were 27 abdominal hysterectomies for cancer of the fundus, 7 of which were Cobb's personal cases. The immediate mortality was 4, or 14.8 per cent., and of those cases in which the operation was done over five years before, only 42.8 per cent. were cured.

Summing up, Cobb says, that the extended radical abdominal operation is the method of choice, the method that offers the greatest possibility of cure in cancer of the cervix if done by specially trained men. The earlier the diagnosis is made the greater the chance of cure. Simple vaginal hysterectomy is a safer and better method than simple abdominal hysterectomy in ordinary hands. The extended abdominal operation is contra-indicated in marked adiposity and in feeble patients. Cobb has done the Wertheim operation for cancer of the cervix 34 times with an immediate mortality of 5, or 14.3 per cent. In addition he has done abdominal hysterectomy for cancer of the fundus 7 times with no immediate mortality. Only 6 of the cancer of the cervix cases were done over five years ago, 5 of these patients are alive and well and free from recurrence from five to thirteen years. The cause of death in Cobb's cancer of the cervix operations is as follows: One patient died of peritonitis within forty-eight hours; one in twelve hours of shock; one on the tenth day, cause of death not made out at necropsy; one in the fifth week of iliac thrombophlebitis, and one in the tenth week of intestinal obstruction.

20. **Cancer of Rectum.**—The results obtained in carcinoma of the rectum Jones states depend almost entirely on the character of the growth and its duration, and comparatively little on the operation done. That is, they depend on the vigilance of the patient, and the vigilance and thoroughness of the physician and surgeon. Certain cases in which there is much tenesmus demand a radical operation, even when hopeless, simply for the relief it gives, and which is not obtained in many cases with a simple colostomy. Theoretically, the combined abdominosacral operation is the operation of choice. Practically the mortality is too high except in selected cases. Statistics of late results are not sufficiently good to warrant taking the extra risk in the obese, the feeble, and in men over 50. The combined two-stage operation, if the second stage is done under spinal anesthesia, will give a mortality between 15 and 20 per cent. A serious objection to this operation is the danger of infecting the denuded area with cancer cells brought through the lymphatics from the growth. The Kraske operation is the operation of choice in the obese, the feeble and patients over 60.

21. **Cancer of Bladder.**—Chute believes that so long as a growth is confined to the mucous layer of the bladder there is probably no lymphatic involvement; that the moment it invades the deeper layers we have lymphatic involvement; that when this has taken place the lymphatics of the pelvis must be removed, no matter how small the original focus is, if patients are to be cured. Chute feels that we must accept total cystectomy temporarily at least, as a necessary part of any attempt at radical treatment of malignant disease near the bladder outlet.

California State Journal of Medicine, San Francisco

November, XII, No. 11, pp. 437-478

23 *Early Symptomatology of Subacute Bacterial Endocarditis. E. C. Dickson and R. L. Wilbur, San Francisco.
24 Medical Hospital Bookkeeping. W. R. Dorr, San Francisco.
25 Leukocytic Extract in Treatment of Pneumococcus Infections in Rabbits. A. Meinhard and H. B. Reynolds, Palo Alto.
26 Case of Paroxysmal Hemoglobinuria Treated with Salvarsan; Disappearance of Characteristic Blood Reaction and of Positive Wassermann. W. V. Brem, Los Angeles.
27 Status Lymphaticus. J. M. Brown, Los Angeles.
28 Nasal Conditions Causing Asthma. W. H. Dudley, Los Angeles.
29 Relation of Local Infections to Joint Affections. L. W. Ely, San Francisco.
30 Treatment of Pneumonia with Leukocytic Extract. H. B. Reynolds, Palo Alto.
31 Complications in Cataract Extraction. V. H. Hulen, San Francisco.
32 Prevention of Tuberculosis in Children. T. C. McCleave, Berkeley.

23. **Early Symptomatology of Subacute Bacterial Endocarditis.**—Dickson and Wilbur emphasize the importance of certain manifestations by which an early diagnosis can be made in these cases, such as the painful nodules in the skin, in the occurrence of petechial hemorrhages in the skin, and especially in the mucous membrane of the mouth and in the conjunctiva; in the presence of Gram-positive diplococci in the urine when local cause for them can be excluded; and finally in the demonstration of the characteristic diplostreptococcus in the blood.

Canadian Medical Association Journal, Toronto

November, IV, No. 11, pp. 949-1043

33 Intestinal Stasis. M. Einhorn, New York.
34 Id. A. McPhedran, Toronto.
35 Id. A. Primrose, Toronto.
36 Id. J. M. Elder, Montreal.
37 Id. F. N. G. Starr, Toronto.
38 Ileal Stasis. L. G. Cole, New York.
39 Early Diagnosis and Prognosis of Pulmonary Tuberculosis by Roentgen Methods. A. L. Gray, Richmond, Va.
40 *Subcutaneous Injection of Oxygen. H. O. Howitt, Guelph.

40. **Subcutaneous Injection of Oxygen.**—Howitt's experience with the intramammary injection of oxygen according to Derose which now covers nearly two years, includes the dyspnea of tuberculosis, gas poisoning, pneumonia (lobar and lobular) edema of the lungs, bronchial asthma and operative cases. In no case were any ill effects noticeable, either at the time or afterward. One asthmatic said that it relieved him, but Howitt did not notice appreciable improvement. The oxygen is generated from sodium peroxid coming in contact with water in a closed cylinder, and the gas set free escapes by means of a long rubber tube, at the distal end of which is an aspirating needle which is inserted into the subcutaneous tissue. The tube is then oiled and by a pumping action of the hand, sufficient force is used to raise a lump once or twice as large as the closed fist. The oxygen injected by this method forms a local emphysema which lasts for hours and may travel over the surface of the body. Apparently the body only absorbs that which is necessary. It is really the formation of an artificial lung.

Georgia Medical Association Journal, Augusta

October, IV, No. 6, pp. 167-195

41 *Experimental Study of Abderhalden Test. A. H. Bunce, Atlanta.
42 Whitman's Method of Treatment of Fractured Hip. C. C. Harrold, Macon.
43 *Management of Pregnancy and Normal Labor. B. Moore, Atlanta.
44 Roentgen Ray in Treatment of Skin Cancer. C. Swanson, Atlanta.
45 Present Status of Radium. Report of Case. T. E. Oertel, Augusta.
46 Salvarsan. J. Swafford, Athens.
47 The Prescription. R. C. Wilson, Augusta.
48 Diet as Means of Oral Prophylaxis. M. T. Summerlin, Athens.

41. Abstracted in THE JOURNAL, May 9, p. 1499.

43. Abstracted in THE JOURNAL, May 2, p. 1429.

Journal of Cutaneous Diseases, New York

November, XXXII, No. 11, pp. 751-820

49 *Clinical, Pathologic and Experimental Study of Lesions Produced by Bite of "Black Fly." J. H. Stokes, Ann Arbor, Mich.
50 *External Vaccine Therapy. H. P. Towle, Boston.
51 Autoserotherapy of Certain Diseases of Skin. J. S. Hilario, Manila.
52 Herpes Zoster Following Arsenic. R. C. Finlay, Grace, Miss.

49. **Study of Black Fly Bite.**—To the question as to whether the bites of the black fly are capable of giving rise to constitutional reaction in man, Stokes answers that the temperature in a small child which received twenty-five or more bites in one afternoon, never went above normal, although the lymphadenitis was marked and the child fretful and restless. Several persons under his observation expressed themselves as having felt "tired and stiff all over" after being severely bitten by the flies early in the season. Nothing comparable to the severe reactions described in the literature has come under Stokes' observation.

50. **External Vaccine Therapy.**—Vaccines were used externally by Towle in more than 150 cases. The vaccine containing preparations manifested their therapeutic activity as abundantly and so consistently that long continued experimentation was unnecessary to convince him that it was practicable to obtain vaccine effects by external methods of administration. Of the ordinary fatty substances, the final selection as ointment bases, alone or in combination was, in the order of preference; lanolin, vaselin, cold cream and (for use on the hairy parts) a fat emulsion known as liquid cold cream. Occasionally, one or the other was used alone, but increasing experience gradually led to the more frequent use of combinations.

No fixed formula has been followed. Instead, both composition and proportion have been varied, as the varying conditions in each case seemed to indicate. In a general way, the simplest formula, plus more or less powder, seemed the most useful in the presence of exudative conditions. The composition of the base was varied in accord with the ordinary rules for the use of pastes and ointments. For pastes, starch was ordinarily the substance added to stiffen the base. For ointments, the greatest satisfaction was derived from varying combinations of glycerin, vaselin, distilled water and lanolin, and of olive oil or almond oil, lime-water and vaselin. On the hairy parts, the use of pastes and ointments is inconvenient and frequently undesirable. As a compromise between the frequent use of a greasy but more or less penetrating salve and the more easily applied but superficially acting lotion, a thin emulsion, with cold cream added to give it more body, has been found to be an efficient means of applying vaccines to the scalp and other hairy parts.

Regardless of the form of the base chosen, it was found desirable that the vaccine preparation should be rubbed in with fingers until a considerable portion has disappeared, except in the case of an exudative eruption, in which the broken surface of the skin facilitates absorption. In the latter, it suffices merely to smear the vaccine preparation over the surface. External vaccine therapy was found the most efficient in the treatment of acute inflammation of infections whose seat is superficial, and therefore easily reached from without. Of all infectious processes, the staphylococcic is the most easily influenced by external vaccine therapy. On other infections the effects of external vaccine treatment are less marked, and in the various forms vary considerably.

Journal of Nervous and Mental Disease, Lancaster, Pa.

November, XLI, No. 11, pp. 681-744

53 *New (Familial) Form of Progressive Spinal Myopathy. C. L. Dana, New York.
54 *Spinal Fluid Cell Counts in Untreated Cases of Cerebrospinal Syphilis. H. W. Mitchell, I. A. Darling and P. B. Newcomb, Warren.
55 Psychoses Among Negroes. E. M. Green, Milledgeville, Ga.
56 Cerebellar Syndrome of Babinski. Report of Case. H. K. Marks, New York.

53. **New Form of Spinal Myopathy.**—Dana cites a case occurring at the age of 53, in a family in which ten cases were known to have developed in three generations. The clinical history shows that its course is like that of a disease which destroys one group of spinal motor cells one after another. It is not a slowly developing atrophy followed by paralysis, but a rather sudden paralysis followed by atrophy. The disease progresses and the patient dies in a period of about one year. The patient's maternal grandmother had the same disease and died of it in her forty-first year. Maternal grandfather healthy. There were three children borne by her mother. One died at birth and one, a sister of the patient, died at 47 of gastric ulcer. Her mother died of this progressive paralysis at the age of 47. In her case the disease began in the fingers and then went to the legs and throat and the whole trouble lasted a year. The mother had three sisters who died of the same trouble, one at the age of 52, one at 42 and one at 37. In two of these cases the trouble began in the arms and in one case in the legs. In all cases the disease progressed upward. The mother had a brother whose son developed the trouble at the age of 35. She had two other sisters who did not have the disease, each married and had healthy children. Four are known to be living at ages of 50 to 60. In addition to this, three sons of the grandmother's sister died of the family disease.

54. **Spinal Fluid Cell Counts in Syphilis.**—In a review of thirty-four cases a count of three or less was found at some time in all but two, both far advanced paretics. Seven of the cases showing high average counts were paretics exhibiting excitable, grandiose tendencies during the period they were under observation, but similar results were also found in cases showing pronounced dementia and comparative remission of active symptoms. High counts were found in all stages of the disease, from the first to the tenth year of well defined paretic symptoms. In several cases very great variation was shown in the counts at two weeks' intervals without any appreciable changes in the patients' symptoms. Low average counts were also found to occur in all stages

of the disease. Of ten patients with the highest count below twenty, seven are dead or bedridden, two show remission of active symptoms and one is ambulant but much demented. The period of the disease in these cases varied from the first to the thirteenth year.

The authors conclude that great variation in the cell count may be found at short intervals in any stage of the disease. Both high and low average counts persist for months at a time in various stages of the disease. A low or falling count is common but not universal before death. A reduction in the cell count to the normal limit frequently occurs in progressive, untreated cases at any time during the course of the disease. The reduced cell count, accompanied with persistence of a positive Wassermann in the fluid, cannot be regarded as having valuable prognostic significance.

Kentucky Medical Journal, Bowling Green

November 1, XII, No. 21, pp. 651-702

57 Serodiagnosis of Pregnancy. H. J. Farbach, Louisville.

Lancet-Clinic, Cincinnati

October 31, CXII, No. 18, pp. 471-498

58 Inebriety in Old Age. T. D. Crothers, Hartford.
59 Extraction of Steel and Iron Particles from Eye by Electromagnet. V. Ray, Cincinnati.
60 Inflammation of Accessory Sinuses. C. R. Holmes, Cincinnati.
61 Mediastinal Tumor. J. E. Pirrung, Cincinnati.

November 7, No. 19, pp. 449-522

62 Is Genius a Matter of Chemistry? J. A. Hagemann, Pittsburgh.
63 Enlargement of Thyroid Treated with Epinephrin. Report of Case. H. J. Phillips, Louisville, Ky.
64 Acute Perforation of Stomach with Spontaneous Recovery. J. H. Schroeder, Cincinnati.
65 Dermatitis Herpetiformis (Duhring) Associated with Pigmentation and Keratoses. M. Scholtz, Cincinnati.
66 Huntington's Chorea Synonyms—Chorea Chronica Progressiva, Chorea Hereditaria, Dementia Choreica. H. H. Hoppe, Cincinnati.

Medical Record, New York

November 14, LXXXVI, No. 20, pp. 825-866

67 *Toxic Diseases of Nervous System. Report of Case. E. D. Fisher, New York.
68 Cholera in Philippines During 1913. V. G. Heiser, Manila.
69 Faculty of Medicine in Original University of Louvain, 1426-1797. J. B. Stein, New York.
70 Case of Thrombo-Angeitis; Wassermann Long Negative now Positive. W. C. Lusk, New York.
71 Necessity for Broader Conceptions in Gastro-Enterology. C. S. Fischer, New York.
72 Mistakes Made in Taking and Interpreting Blood-Pressure Readings. G. Richter, St. Louis.
73 Neurosis and Purpose. G. M. Parker, New York.
74 Painless Parturition. M. W. Kapp, San Jose, Cal.
75 Recovery from Bichlorid of Mercury Poisoning. F. F. Durrah and G. W. White, Washington, D. C.

67. **Toxic Diseases of Nervous System.**—Four cases are cited by Fisher. The first was a case of ascending paralysis, with attending neuritis, which followed the usual course of extension, later involving the upper extremities and the bulbar nerves, resulting in respiratory failure. The pathologic findings are definite, involving both the peripheral and central nervous system. The course of the disease was longer than that usually described, extending over six weeks, but otherwise the case was typical in its manifestations. The second case was one of a distinct infection of an unknown character, involving the meninges, as shown conclusively by the rigidity of the neck, and the increased cell count in the spinal fluid. The neuritis of the lower extremities, a loss of reflexes, and ascending paralysis suggest a condition of the nature of Landry's paralysis. A third case from the symptoms suggested either some infection involving the membranes at the base of the brain, or basal syphilitic meningitis.

The necropsy showed, however, a sarcomatous basilar meningitis. Small bodies resembling tubercles were found scattered over the meninges and the base of the brain, and two small tumors were found in the frontal lobes, incapable of causing any symptoms. There was also a secondary involvement of the liver and spleen. The fourth case did not correspond to syphilis of the nervous system nor did it respond to antisyphilitic treatment. There was evidently an acute affection of the nervous system, cord and bulb, suggesting acute ascending paralysis or poliomyelitis. Fisher suggests that possibly we may in the future put many of these cases of myelitis or primary lateral sclerosis down to toxic agents, especially when, as in one of these cases, there was no evidence of syphilis.

Michigan State Medical Society Journal, Grand Rapids

November, XII, No. 11, pp. 635-680

76 Suggestions as to Origin and Remedy of Malpractice Actions. H. V. Barbour, Detroit.
77 Syphilis in Relation to Certain Nervous Disorders. W. Taylor, Detroit.
78 Treatment of Luetic Diseases of Nervous System. C. W. Hitchcock, Detroit.
79 Infantile Sensitization to Egg-Albumin. H. M. Rich, Detroit.
80 Diagnosis and Treatment of Acute Appendicitis and Its Complications. C. D. Brooks, Detroit.

Modern Hospital, St. Louis

November, III, No. 5, pp. 283-350

81 Insurance Company Seeking to Improve Individual and Public Health. L. K. Frankel, New York.
82 Hospital Records. J. B. Howland, Boston.
83 First Aid Hospitals in Coal Mines. D. H. Lake, Kingston, Pa.
84 Fire Protection and Fire Drills in Hospitals. H. F. J. Porter, New York.
85 Lunches for School Children. E. F. Brown, New York.
86 How Nurses May Contribute Toward Hospital's Success. A. Beers, Fairfield, Ia.
87 Feeding the Hospital—Food. L. Graves, Cleveland.

New Mexico Medical Journal, Las Cruces

October, XIII, No. 1, pp. 1-40

88 Eugenics. H. B. Kauffmann, Albuquerque.
89 Be a Man. C. M. Mayes, Roswell.
90 Snake Poisoning; Symptoms and Treatment. A. J. Evans, Elida.
91 Cholelithiasis. W. T. Joyner, Roswell.

New Orleans Medical and Surgical Journal

November, LXVII, No. 5, pp. 419-502

92 Bacteriology and Pathology of Bubonic Plague. H. W. Wade, New Orleans.
93 Cystitis—An Over-Worked Diagnosis. A. Nelken, New Orleans.
94 Efficacy of Vaccines in Treatment of Chronic Diphtheria Carriers. A. I. Weil, New Orleans.
95 Surgical Surprises. M. J. Gelpi, New Orleans.
96 Acetone, Acetonuria, Acidosis, Acid Intoxication. E. D. Fenner, New Orleans.
97 Subcutaneous Traumatic Rupture of Gall-Bladder. L. A. Fortier, New Orleans.
98 Medical Aspects of Hodgkin's Disease. C. L. Eshleman, New Orleans.
99 Eosinophilia in Anaphylactic Reactions. F. M. Johns, New Orleans.
100 *Specific Cause and Specific Cure of Pyorrhea Alveolaris or Riggs' Disease. C. C. Bass and F. M. Johns, New Orleans.

100. **Pyorrhea Alveolaris or Rigg's Disease.**—In August, 1914, Bass and Johns found amebas in a stained preparation of pus from a case of pyorrhea alveolaris. They examined specimens from six other cases. Apparently the same species of ameba was found in each of the seven cases. Their close resemblance to the entameba of amebic dysentery and the marked specific favorable influence of treatment with ipecac and emetin in amebic dysentery led them to expect that the same effect might be exerted on this form of amebic disease also. They began treating patients with emetin hypodermatically. They examined material from the lesions in eighty-seven cases of pyorrhea and found ameba in eighty-five of them. One of the negative cases was a single slide prepared a distance from the laboratory, from the gum of a patient who was convalescing from plague. Pus could be squeezed from her gums and the diagnosis of pyorrhea alveolaris seemed indicated. The other negative case was that of a 13-year-old girl with acute gingivitis, involving all the gums, of about eight days' duration. Thorough search failed to show ameba, and the authors now believe this probably was not a case of pyorrhea alveolaris or Rigg's disease.

They also made more than 100 examinations of preparations made from apparently normal gums and teeth, either in the mouths of patients who had the disease involving other teeth, or in people who appeared to have normal gum margins. They have not been able to find amebas in a single instance. They have, however, found them on several occasions in instances in which the gum margin appeared inflamed and diseased. In several instances they found amebas in similarly mildly inflamed and "easy to bleed" gum margins of one or more teeth in patients who had well-advanced Rigg's disease around other teeth. They found amebas around teeth in

what they considered to be all the different stages of the disease in the same case, from the slight redness at the gum margin and tendency to bleed easily to the tooth hanging loose in its socket or standing, entirely stripped of gum on the exposed carious bone.

The doses of emetin experimented with have been from ½ to 1 grain. Only one dose was given in a day. Several cases have been given a dose daily for several days. Others were given one or more doses until the amebas disappeared. In several instances no amebas could be found the next day after the first dose was given. In a few, however, they were found the next day after emetin had been given on two successive days. In no case have the authors been able to find amebas the next day after emetin had been given on three successive days. In one instance they found amebas on the fourth day after the last emetin had been given; in another instance on the sixth day; in several instances none could be found after seven days or longer intermission of treatment.

New York Medical Journal

November 14, C, No. 20, pp. 949-996

101 Exophthalmic Goiter. R. S. Fowler, New York.
102 *Artificial Cultivation of Rabies Virus. F. Proescher, Pittsburgh.
103 Topical Employment of Tuberculin. W. W. Babcock, Philadelphia.
104 *Operative Treatment of Contracted and Deformed Hands in Multiple Arthritis. G. R. Elliott, New York.
105 Psychic Complex in Congenital Deformity. D. L. Sohn, New York.
106 Case of Double Compound Fracture. J. Hund, Fredonia, Wis.
107 Narcotic Addiction. P. M. Lichtenstein, New York.
108 Fancies, Facts and Consumption. T. J. Mays, Philadelphia.
109 Study of Methods of Lavage. J. P. Sawyer, Cleveland.
110 Present Situation in Tuberculosis. F. Tice, Chicago.
111 Meningococcic Empyema. Report of Case. A. I. Rubenstone, Philadelphia.

102. **Artificial Cultivation of Rabies Virus.**—Proescher describes his method as follows: Thirty c.c. of sterile, not filtered, sheep serum is filled into large test tubes 2.5 by 15 cm. and incubated for forty-eight hours, to prove the sterility of the serum. A large piece of the brain substance of a rabid animal removed under aseptic precautions is placed in the bottom of each serum tube, the serum sealed with paraffin oil, and the tube closed with a cotton plunger. The tubes can be kept under aerobic conditions. Proescher says that it is advisable to inoculate at least fifty tubes, as few only will show a growth. Typical changes in the culture medium are not noted. Tubes showing gas formation or coagulation of the serum are rejected. The tubes should be kept at least two months under observation and examined every eight or ten days. The first primary culture Proescher obtained was incubated for two months; repeated examinations before did not show any growths. For subcultures, serum bouillon only (one to ten) is used, as in the common culture medium no growths can be obtained. The serum bouillon after twenty-four hours' incubation is homogenous, cloudy, and after several days' incubation shows a granular sediment. The micro-organisms of the primary culture appear after staining with methylenazur in the form of cocci and oval bacilli, varying in size from just visible to 0.2 to 0.3 micron; in the form of diplococci or aggregated in small groups or short chains. With the Gram stain, using carbolfuchsin as counterstain, the larger forms are more or less Gram-positive, while the smaller forms are faintly stained red. The micro-organisms appear after several transplantations in serum bouillon somewhat larger, and the majority of the micro-organisms are Gram-positive. The inoculation of these cultures into rabbits, rats, and a monkey produced typical rabies.

104. **Operative Treatment of Contracted and Deformed Hands.**—The deformities are reduced by Elliott by forcible reduction and open operation combined. Most of the displacements can be corrected by redressing alone. The reduction is made under profound ether or chloroform narcosis. The fingers are taken singly, forcibly breaking down the contracture or hyperextension and redislocation if such exists. If the finger is contracted, it is forcibly hyperextended. The reverse is done in case of hyperextension deformity. All the hand deformities are overcorrected. The hands are placed on splints padded in such a manner as to keep up a continual overcorrection of the deformity. For three or four days the pain is intense and has to be partially controlled by sedatives. Each joint is wrapped in gauze, saturated with a lotion composed of aconite, belladonna, and glycerin. This dressing is extended over the back of the hand considerably above the wrist, and is covered with oiled silk. A very firm bandage is applied, leaving the tips of the fingers exposed. The pressure must be firm enough to prevent much swelling. The gauze is kept wet with the lotion and over this an ice bag is applied. The tips of the fingers offer a control, and undue localized pressure is readily detected. The splint is used for two weeks. The wet dressing is discontinued as soon as the reaction symptoms subside usually in four or five days. When the pain ceases, it does not return. Not infrequently certain deformities will not give way without a cutting operation. Whenever this is necessary, cutting should be done first. After the wounds are healed, redressment can be carried out.

Pennsylvania State Medical Journal, Athens

October, XVIII, No. 1, pp. 1-90

112 Established Values in Dietetics. L. Litchfield, Pittsburgh.
113 Intestinal Stasis in Its Relation to Gastric and Duodenal Ulcer. E. LaPlace, Philadelphia.
114 Sero-Enzymes in Pregnancy and Disease. J. A. Kolmer, Philadelphia.
115 Work of Bureau of Medical Education and Licensure in Relation to State Medicine. J. M. Baldy, Philadelphia.
116 Retention of Urine and Its Treatment. T. C. Stellwagen, Jr., Philadelphia.

United States Naval Medical Bulletin, Washington

October, VIII, No. 4, pp. 541-749

117 Some Prevailing Ideas Regarding Treatment of Tuberculosis. G. B. Crow, U. S. Navy.
118 Training School for Hospital Corps of Navy. F. E. McCullough and J. B. Kaufman, U. S. Navy.
119 Khaki Dye for White Uniforms. W. E. Eaton, U. S. Navy.
120 Some Facts and Some Fancies Regarding the Unity of Yaws and Syphilis. C. S. Butler, U. S. Navy.
121 Quinin Prophylaxis of Malaria. L. W. McGuire, U. S. Navy.
122 Nervous System and Naval Warfare. T. W. Richards, U. S. Navy.
123 Measles. Report of Case. G. F. Freeman, U. S. Navy.
124 Small-Pox and Vaccination. T. W. Raison, U. S. Navy.
125 Rabies. F. X. Koltes, U. S. Navy.
126 Syphilis Aboard Ship. G. F. Cottle, U. S. Navy.
127 Systematic Recording and Treatment of Syphilis. A. M. Fauntleroy and E. H. H. Old, U. S. Navy.
128 Organization and Station Bills of U. S. Naval Hospital Ship "Solace." W. M. Garton, U. S. Navy.
129 Succinimid of Mercury in Pyorrhea Alveolaris. P. G. White, U. S. Navy.
130 Case of Pityriasis Rosea. R. E. Ledbetter, U. S. Navy.
131 Emetine in Treatment of Amebic Abscess of Liver. H. F. Strine and L. Sheldon, Jr., U. S. Navy.
132 Salvarsan in Case of Amebic Dysentery. O. J. Mink, U. S. Navy.
133 Laceration of Subclavian Artery and Complete Severing of Brachial Plexus. H. C. Curl and C. B. Camerer, U. S. Navy.
134 Malarial Infection Complicating Splenectomy. H. F. Strine, U. S. Navy.
135 Case of Gastric Hemorrhage—Operative Interference Impossible. G. E. Robertson, U. S. Navy.
136 Operation for Strangulated Hernia: Report of Case. W. S. Pugh, U. S. Navy.
137 Case of Bronchiectasis with Hypertrophic Pulmonary Osteo-Arthropathy. L. C. Whiteside, U. S. Navy.

Wisconsin Medical Journal, Milwaukee

October, XII, No. 5, pp. 175-216

138 State Medical Society of Wisconsin. C. S. Sheldon, Madison.
139 *Modern Treatment of Syphilis. O. H. Foerster and C. A. Baer, Milwaukee.
140 Diagnosis of Incipient Pulmonary Tuberculosis. L. M. Warfield, Milwaukee.
141 Preparatio of Bacterial Vaccines. E. V. Brumbaugh, Milwaukee.
142 Transfusion of Blood. H. M. Brown, Milwaukee.

139. Abstracted in THE JOURNAL, Nov. 1, 1913, p. 1657.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Indian Journal of Medical Research, Calcutta

July, II, No. 1, pp. 1-403

1 Invasion of Tissues by Cholera Vibrio; Pneumonia in Cholera. E. D. W. Greig.
2 Lesions of Gall-Bladder and Biliary Passages in Cholera. E. D. W. Greig.

3 *Treatment of Snake-Bite. H. W. Acton and R. Knowles.
4 *Treatment of Snake-Bite with Potassium Permanganate. W. B. Bannerman.
5 *Pathogenesis of Experimentally Produced Goiter. R. McCarrison.
6 *Experimental Researches on Etiology of Endemic Goiter. R. McCarrison.
7 Summary of Year's Mosquito Work in Colombo. S. P. James.
8 Epidemic or Fulminant Malaria. Part Played by Immunity in Malaria. C. A. Gill.
9 Cinchona Derivatives Inquiry. A. C. MacGilchrist.
10 Stygeromyia Maculosa in Madras. W. S. Patton.
11 Classification of Bacteria for Purposes of Water Analysis. J. W. Cornwall.
12 *Study of Experimental Beriberi. R. McCarrison.
13 Parasite of Bat Malaria. F. P. Mackie.
14 Flagellate Infection of Sand-Flies. F. P. Mackie.
15 Bursate Nematodes from Indian Elephant. C. Lane.
16 Behavior of Parasite of Indian Kala-Azar in Dog Flea: Canine Kala-Azar and Its Relation to Human Disease. W. S. Patton.

3. **Treatment of Snake-Bite.**—The value of local remedies in snake-bite treatment, according to Acton and Knowles is strictly limited by two factors, the necessity of inoculating the patient with them before a fatal dose of venom has been absorbed, and the fact that only such venom as they happen to come into contact with *in situ* will be destroyed. They must be given before one minimum lethal dose has been absorbed into the circulation. For man, for 10 minimum lethal doses of cobra venom, this period is about ten minutes. The more concentrated and the larger the dose of venom given the shorter is the period available. An efficient ligature increases this time limit. Subcutaneous injection of these remedies in solution gives much better results than does incision and the rubbing in of moistened crystals. If they be given subcutaneously, no incision should be made.

The authors' experiments show that the immediate injection of 10 to 20 c.c. of a 1 to 5 per cent. solution of gold chlorid is the most efficient local remedy. In some cases this measure alone may save life. In others it will reduce to a minimum the amount of venom which has to be dealt with by means of systemic remedies. When brought into contact with large doses of venom in concentrated solution these remedies exert a more intense action than when acting on small doses in dilute solution. In the case of bites on fingers or toes, in which large volumes of fluid cannot be given hypodermically, two lines of procedure are open. Either a complete dissection of the area of the bite should be made and crystals of potassium or preferably of zinc permanganate should be rubbed in. Or an injection of ½ to 1 c.c. of a concentrated solution preferably of gold chlorid, should be made into several sites in the neighborhood of the punctures. Acton and Knowles are inclined to think that the latter method is the better.

The use of ox bile as a solvent improves the action of weak solutions of gold chlorid and iodin trichlorid. A 5 per cent. solution of gold chlorid in ox bile is not of greater value than a corresponding solution in saline. Bile improves the action of strong solution of permanganates but not of weak solutions. On intravenous injection these remedies are said to be not merely useless, but, owing to the danger of their causing intravascular clotting and pulmonary embolism, they are dangerous.

4. **Treatment of Snake-Bite with Potassium Permanganate.**—Bannerman concludes that a dog bitten by a cobra cannot be saved by the local application of powdered potassium permanganate rubbed in after free incision of the bitten place; nor by a similar application of a solution of the powder. It may be saved, however, by the immediate subcutaneous injection of 10 c.c. of a 5 per cent. solution of potassium permanganate; but this solution is so strong that gangrene of all the tissues of the foot is produced. If this treatment be delayed for even two minutes, a fatal result cannot be averted. A dog bitten under natural conditions by a Russell's viper, cannot be saved by the local application of potassium permanganate.

5. **Experimentally Produced Goiter.**—The pathologic process which results in the formation of goiter in rats, McCarrison says, is essentially of a diffuse character. This process initially affects epithelium of the gland giving rise to hypertrophy, hyperplasia and the formation of many new acini, and may ultimately lead to degeneration and death of the parenchyma cells. It is an exaggeration of the normal physiologic process and results primarily in an increased production and an increased absorption of colloid which may be followed by cell-exhaustion as a consequence of overwork and malnutrition. The transition from the physiologic to the pathologic state is very gradual and the line of demarcation between the two is arbitrary. The pathologic changes which result in the development of goiter in rats are the same as in man, and are probably, therefore, due to the same goiterigenous agent or agents. The goiterigenous agent or agents are of the nature of toxins which stimulate the thyroid gland to abnormal activity. The toxic agent or agents of endemic goiter are produced in the intestinal tract of man and animals. The goiterigenous agent or agents are intermittent in their action in the case of endemic goiter—continuous in their action in the case of Graves' disease. There is no evidence that the blood or thyroid glands of goiterous individuals contain organisms of a bacterial or protozoal nature.

6. **Etiology of Endemic Goiter.**—McCarrison claims that at certain seasons of the year goiterigenous substances may be present in the feces of goiterous and non-goiterous persons and animals which are capable of causing the development of massive goiters in rats. Factors of nutrition are not of paramount importance in the genesis of goiter in rats. Insect transmitters of disease are not responsible for the spread of goiter in rats. House, room, cage or fish-tank infection is an important factor in the genesis of goiter. The excreta of the human or animal subject is the main source of the disease. The infecting agent is capable of life, and it may be of some degree of growth, outside the body of man in fecally contaminated soil or grossly polluted water. Suspicion points to intestinal anaerobes as possessing a goiterigenous influence on the thyroid gland. Water, food, soil or other mediums whereby the infecting agent or agents of the disease reach the bodies of man and animals are of importance only as vehicles of its transmission.

12. **Experimental Beriberi.**—Of twelve pigeons fed by McCarrison only on dry polished rice, seven developed typical polyneuritis gallinarum within ten to twenty days. The remaining four escaped the disease within the period of the experiment. Of twelve pigeons fed only on boiled polished rice, nine developed typical polyneuritis within ten to twenty days. The remaining three escaped the disease within the period of the experiment. Of twelve pigeons fed on liberal diet none developed any signs of disease. Blood agar on ordinary agar plates were smeared with portions of the internal organs of six pigeons suffering from experimental beriberi produced as a result of the consumption of polished rice; innumerable colonies of a bacillus resembling that of hog-cholera appeared on the plates, after twelve to fifteen hours' incubation at 37 C. in all six cases.

The organs of three out of four control pigeons examined were sterile, while a very few colonies of this bacillus were obtained from the internal organs of the fourth. A few colonies of this organism were obtained from the organs of four out of eight pigeons which were fed on polished rice, but which showed no clinical signs of the disease within the period of the experiment. Living cultures of this bacillus, when inoculated into liberally fed rabbits, fowls and pigeons (a total of twenty-eight animals) produced in nineteen, or 67.8 per cent., within a period of nine days, symptoms which were indistinguishable clinically from polyneuritis gallinarum. The sciatic nerves of all such cases showed degenerative changes of greater or lesser degrees of severity, while those of seventeen controls, whose organs were sterile, have shown no evidence of pathologic change.

Journal of Pathology and Bacteriology, London

October, XIX, No. 2, pp. 139-304

17 *Histologically Non-Malignant Angioma, with Numerous Metastases. T. Shennan.
18 Variation in Amount of Complement in Blood in Some Acute Infectious Diseases and Its Relation to Clinical Features. W. C. Gunn.

19 Comparison Lesions of Nervous System in Distemper of Dog with those of Human Poliomyelitis. J. P. McGowan and J. W. Dawson.
20 An Unusual Tumor (Granuloma or Myxosarcoma) of the Hand. J. A. C. MacEwen.
21 *Analysis of the Effect of Nuclein and Nucleic Acid on Normal Antibody. S. P. Bedson.
22 Simplified Method for Cultivation in Fluid Media Containing Coagulable Albumin, of Bacteria Requiring Anaerobic Conditions Notably Pathogenic Spirochetes. J. W. McLeod and A. R. B. Soga.
23 Studies of Strain of Gonococcus Grown on Ordinary Media. W. Broughton-Alcock.
24 Regulation of Blood Volume in Normal and Nephritic Animals. Experiments with Tissue Fluid. A. E. Boycott and J. S. C. Douglas.
25 Iron Content of Organs in Bronzed Diabetes (Hemochromatosis). R. Muir and J. S. Dunn.
26 *Study of Boas-Oppler Bacillus. H. M. Galt and C. C. Iles.
27 Fatty Changes in Liver, Heart and Kidney. C. G. Imrie.
28 Pathologic Changes in Liver Resulting from Passive Venous Congestion Experimentally Produced. C. Bolton.
29 Regulation of Blood Volume in Experimental Nephritis. R. A. Chisolm.
30 *Obligate Anaerobes in Alimentary Tract of Infants. E. J. Dalyell.
31 Purification of Crude Silk Peptones for Bacteriologic Purposes. I. W. Hall.

17. **Histologically Non-Malignant Angioma.**—Shennan's case was one of angioma which displayed no sarcomatous transformation or other histologic indication of malignancy, yet gave rise to numerous secondary growths throughout the body. The patient was 23 years of age. The clinical sequence of events was as follows: A toxic gastro-intestinal attack about 1900, thirteen years ago, when the patient was about 10 years of age. The influenzal attack, with barking cough, suggesting mediastinal pressure, in December, 1907, six years ago, when the patient was about 17 years of age. Hemoptysis, June and July, 1908, five and a half years ago. No return of symptoms until in July, 1909, when also hemoptysis occurred; a year later it was most persistent. Enlargement of the spleen was first detected in October, 1909, some time before her first attack of splenitis. Hemorrhage into the pleural cavity at the time of the first attack of splenitis in November, 1909. At the same time dulness and crepitation were detected for the first time near the root of the left lung. Petechial hemorrhages with beginning formation of nevi in the skin were noticed first about August, 1910. Vomiting of blood occurred on two occasions about October, 1911. Diarrhea with ascites developed in the late autumn of 1912; at same time enlargement of liver. About the same time swelling was detected in the sternum. March 3, 1913, ascitic fluid drawn off was seen to consist largely of blood. May, 1913, the ovaries were felt to be enlarged and cystic. Thrombosis of mesenteric vessels occurred four or five days before death, with infarct of part of intestine. The clinical history pointed to the mediastinum as the earliest seat of the disease. The end came suddenly and seemed to be due to heart failure. Metastases were found in the lung, spleen, liver, ovaries, sternum, left clavicle and lumbar vertebrae. A detailed post-mortem report is presented.

21. **Nuclein, Nucleic Acid and Antibody.**—Bedson found that nuclein alone, out of the three leukocytosis-producing substances examined, brings about a rise in the opsonic index. This rise is first in evidence twenty to thirty minutes after the injection, is still marked seven and one-half hours after, but has completely disappeared in twenty-four hours. The increased opsonic activity of the serum is readily destroyed both by heating for thirty minutes at 56 C. and by diluting with normal saline. It would appear, therefore, that there is no increase in the thermostabile opsonin normally present in the serum. This effect is not produced by all preparations of nuclein or nucleic acid, as, out of the four examined, two were found to be without effect. Seeing that these two latter preparations were the purest of the four, it would appear probable that this effect is not due to the nucleic acid radicle but to the presence of some impurity.

26. **Boas-Oppler Bacillus.**—Specimens of the Boas-Oppler bacillus were obtained by Galt and Iles from three definite cases of carcinoma of the stomach; in these cases free hydrochloric acid was absent, and lactic acid was present in the stomach contents. Isolation and primary cultivation were affected on special mediums, and the morphologic and cultural characters were compared under standard conditions with those of a known strain of the *B. bulgaricus*. The evidence went to prove that the Boas-Oppler bacillus is identical with the *B. bulgaricus* and not an organism *sui generis*. True dichotomy was observed in cultures both of the Boas-Oppler and of the *B. bulgaricus*, indicating that another member of the long rod group of lactic acid bacteria, namely, the *B. bifidus* of Tissier, is probably identical with the above organisms. The inference was drawn that in cases of cancer of the stomach it is the absence of hydrochloric acid that allows of the growth of the bacillus, and that the lactic acid is formed as a result of the activity of this organism.

30. **Obligate Anaerobes in Alimentary Tract of Infants.**—Two types of strict anaerobes were found by Dalyell in the intestinal tract eight to twelve hours after birth, and in the first forty-eight hours of life were more abundant than the facultative anaerobes of the coliform type. The powerfully fermentative and proteolytic *B. aerogenes* was present within twelve to twenty-four hours after birth, in all cases examined. The other anaerobe, also constantly present, is acidophilic and a feeble fermenter of sugars is markedly pleomorphic, and is affected by symbiosis and by variations in culture media. At the end of the first week of life, facultative anaerobes of the coliform type were numerous, but the same two obligate anaerobes were still present in fairly large numbers and could be demonstrated by cultivation in special media.

Lancet, London

October 31, II, No. 4757, pp. 1031-1078

32 Advances in Knowledge Regarding Circulation and Attributes of Blood Since Harvey's Time. R. D. Powell.
33 Traumatic Tetanus. M. H. Gordon.
34 Further Results in Electrolysis Treatment of Cystitis. C. Russ.
35 Small-Pox, Vaccination and New Vaccination Law in Siam. H. C. Highet.
36 Periosteal Whitlow. H. R. Davies.

Bulletin de l'Académie de Médecine, Paris

October 20, LXXII, No. 32, pp. 163-178

37 Present Supply of Milk in Paris. (Le lait du troupeau de Paris, son emploi.) A. Pinard.
38 Extension Apparatus for Fracture of the Humerus. P. Delbet.

Presse Médicale, Paris

September 30, XXII, No. 69, pp. 629-632

39 *Pillow Extension Bandage for Fracture of the Leg. (L'extension continue des fractures compliquées de jambe par le procédé de l'oreiller.) Chaput.
40 Old Roentgen Tubes. (Quelques mots sur un vieux tube à rayons X.) Lomon.

October 8, No. 70, pp. 633-644

41 *Wounds Produced by the French Projectiles. (Des blessures produites par l'armement français.) E. Delorme.
42 *Causes and Treatment of Hospital Gangrene. (Pourriture d'hôpital.) Vincent.
43 *Tetanus in the Wounded. C. Walther.

October 15, No. 71, pp. 645-648

44 *Treatment of Acute and Subacute Dysenteric Colitis. A. Mathieu.
45 *Dentistry Protheses in Military Surgery. (La prothèse dentaire dans la chirurgie de guerre.) P. Martinier and M. Roy.

October 22, No. 72, pp. 649-656

46 Treatment of Fracture of Femur in the Field. (Traitement des fractures de la diaphyse du fémur par coups de feu.) Chaput.
47 General Principles for Military Surgery. (Blessures de guerre.) E. Delorme.

39. **Pillow Extension.**—Chaput gives an illustration of this means of treating compound fracture of the leg. He says that it not only is simplicity itself, but it acts better than more complicated apparatus and has several special advantages. The leg is dressed as usual with gauze and cotton applied thin and smooth all around the leg from the top of the foot to the knee. The leg is then placed lengthwise on an ordinary pillow, not too thick, the heel at the lower end. The sides of the pillow are then brought up and crossed over the leg and a bandage is wound tight around the whole to form a solid cylinder. A strip of cloth is pinned to the lower

part of the pillow on each side, and these are tied together 4 inches below the foot and a weight suspended from them.

41. **Wounds from French Firearms.**—Delorme reviews his experience in treating about 700 Germans wounded by the French arms, and comments on the remarkably large proportion of fractures of the legs, thighs and arms and the rarity of abdominal and chest wounds. He was also impressed by the lack of complications, except tetanus, which was comparatively frequent. The projectile had passed entirely through the foot in many instances, but there was no tetanus or gangrene or erysipelas in any of these cases.

42. **Chlorinated Lime in Treatment of Hospital Gangrene.**—Vincent found in the Madagascar campaign that the rotting wound was rapidly transformed to healthy conditions when it was dusted with fresh chlorinated lime mixed with about ten parts pulverized boric acid. He first cleanses the wound and then covers it generously with this antiseptic powder, dusting with it the skin around. In two or three days the wound assumes an entirely different aspect. He changes the dressings in twenty-four hours if there is much secretion; otherwise he waits for forty-eight. He adds that a 20 per cent. solution of iodin would certainly aid in warding off trouble if it could be applied at the time of the first-aid dressing. It might be possible to include the material in the first-aid packet so that the wounded could make the solution fresh as needed.

43. This article was summarized recently, p. 1684.

44. **Dysentery.**—Mathieu emphasizes that we should not speak of "dysentery" but of "dysenteries," as there are several kinds of dysenteric colitis. Even without waiting for bacteriologic examination it might be advisable to give an injection of antidysentery serum, as it is most effectual when administered at the first signs of dysentery of non-ameba origin. He has found useful a rectal injection morning and night for two days of silver nitrate, 0.25 gm. to a liter of tepid distilled water, suspending then or continuing according to indications. Among other remedies advocated he mentions sodium sulphate for its laxative and modifying action, 5 or 10 gm. in tepid water in the morning if there is not much solid matter in the stools. When there is actual diarrhea he gives smaller doses and gives a little opium with it. After subsidence of the dysentery, a course of small doses of the sodium sulphate may aid in restoring normal conditions in the colon. Persons with dysentery should be fed according to the principles applied in feeding infants with bowel trouble; nothing but water at first, or lactic-acid lemonade with 5 per thousand sugar, taking half a liter at first and then a liter. Sugar is useful in these cases, as it is nourishing and can be taken up to 50, 100 or 150 gm. a day. Fluid food can then be resumed, gradually coming to a vegetable diet with a little ham or roast chicken.

45. **Dentistry Protheses for the Wounded.**—Martinier and Roy remark: "The surgical prothesis as a branch of dentistry owes its origin to Claude Martin of Lyons, and it is thanks to him and to the French school that it has reached its present state of high perfection." Such protheses are useful not only to restore the shape of the jaw, but to promote the healing of a fracture of the jaw. This lesion is particularly serious on account of the wound being constantly bathed with saliva and exposed to infection of all kinds from the mouth. When suture is attempted at once there is almost inevitably suppuration, with additional and avoidable destruction of tissue. The ordinary measures for reduction of a fracture elsewhere cannot be applied to the jaw, but dentistry methods answer the purpose ideally if they can be applied early enough, immobilizing the fracture and permitting healing with the minimum of disfigurement and functional disturbance. "The collaboration of the dentist is thus indispensable to the army surgeon for early assistance in treating wounds, not only of the jaws, but of the skull, while his aid is of paramount importance in the later treatment of wounds leaving defects in the jaws, nose and ears." (The organized dentists of Paris have appointed a committee for assistance to aid in treating injuries of the jaws and face, and offer their services to the surgeons at the front.)

Revue Médicale de la Suisse Romande, Geneva

September, XXXIV, No. 9, pp. 561-588

48 *Artificial Heliotherapy. (L'heliothérapie artificielle avec la lampe de Vignard.) C. Martin.

49 *Landau's Reaction in Diagnosis of Syphilis. J. Golay.

October, No. 9, pp. 589-616

50 *Hypertrophic Stenosis of the Pylorus in Infants; Five Cases. L. Exchaquet.

51 Intermittent Hydrosalpinx. P. Wanner.

48. **Artificial Heliotherapy.**—Du Pan has tried various lights for treatment of bone and joint diseases, but discarded the arc light, as it generates too much heat. The quartz mercury lamp sends out rays most closely approximating direct sunlight, but the middle ultraviolet rays act on the skin and, although useful for lupus and other superficial lesions, they are not only useless but injurious in treating deep lesions. They can be filtered out by interposing a sheet of "pastel" glass, white on the cut edge, which sifts out these middle ultraviolet rays. With a lamp constructed on this principle, with air passing out through a chimney at the top, the skin exposed to its light never gets warmer than 40 C. (104 F.), and there is no perspiration to debilitate the patient and make him thirsty. The lamp has 7,000 candle power and is run with a 500-volt current obtained from the street railway system. Four or five children are exposed to the light at a time. They lie on a large table which slopes down toward the center. Each wears goggles to protect the eyes, but no clothes, the aim being to imitate as closely as possible with artificial light Rollier's method of exposure to the direct sunlight in the Swiss mountains. The results in the thirty-two cases thus treated have been extremely encouraging. They include tuberculous processes in the knee, spine, hip-joints, etc., osteomyelitis, and two cases of chronic peritonitis. One girl of 6 had been operated on two years before for an extremely painful tuberculous process in one knee. She later developed tuberculous keratitis and the other knee became swollen and painful. She was then given a course of the artificial heliotherapy and there was no further pain aften ten exposures. By the end of three months the knee was apparently normal and the child had gained 900 gm. in weight.

49. **Landau's Color Reaction in Diagnosis of Syphilis.**—This simple color reaction was described recently in The Journal, Oct. 10, 1914, p. 1317. The reagent is a 1 per cent. solution of iodin in tetrachlormethane (carbon tetrachlorid). Golay's experience with 63 applications of the test has confirmed its reliability, he declares, and shown that it is more sensitive even than the Wassermann test, while the technic is extremely simple. It was positive in 41 cases, negative in 11; parallel Wassermann tests were positive in only 37 and negative in 26.

50. **Stenosis of the Pylorus with Hypertrophy in Infants.**—The infants were breast-fed in Exchaquet's five cases, and the persistent vomiting began during the first, second, third, sixth or eighth week after birth. There was no inherited nervous taint evident, except in one instance the mother was known to be nervous and to have had stomach trouble. One child seemed to be thriving at first, but then began to vomit, and the physician the third week stopped the breast feeding and put the child on Vichy water and gruel. The vomiting kept up for a month and then stopped and extreme dropsy developed, with subnormal temperature. The diagnosis was athrepsia with idiopathic edema. This diagnosis was correct, but the primary cause, the stenosis of the pylorus, was overlooked and also the secondary cause, namely, the feeding with a mineral water and starch gruel which directly induced the dropsy, fluids being retained to dilute the salt and other minerals being taken in excess. Change to a cream-albumin diet was followed by improvement for a week, but then the child died. Nothing abnormal was found at necropsy except the hypertrophied pylorus, which had enlarged until it was scarcely permeable for fluids.

The persisting vomiting, coming on late after a feeding, extremely copious and squirting with force, the waves of peristalsis in the stomach or its total rigid contraction, and palpation of a tumor in the pylorus region are the main signs of the trouble. A tumor was evident in only two of his five cases. Castor oil, Vichy water, etc., will not stop the

vomiting until the child gets too weak to vomit. A rapid drop in the weight, 500 gm. in two days in one of his cases, and in one of Tixier's, aids in the diagnosis. In well-to-do circles, where the child can have careful attendance, medical treatment may be given a thorough trial, but among the poor, the indications for surgical treatment should be broadened. The operation should come within a day or two if there is a very great drop in weight, and not later than eight or ten days if there is no improvement under systematic medical treatment. Fredet, Scudder and Munro have successfully operated for it on children only 13 to 30 days old. Breast-fed infants should be allowed to nurse as much as they will, if they vomit afterward; the peristalsis should be soothed by moist heat to the region and a little opium or atropin by the rectum. This is Heubner's expectant method. For bottle-fed children, the food should be the most easily digested; buttermilk or sweetened skim milk, milk with malted gruel or milk with albumin and cream. The child should be fed with minute amounts at a time to ward off vomiting, and the stomach should be washed out to bring away any residue. The tendency to spasm should be combated by moist heat and rectal injection of valerian, opium or atropin. The general health should be sustained by subcutaneous and rectal injection of salt solution and nutrient enemas. When possible, it may be wise to supplement the above by stretching the pylorus by intubation according to Hess' technic.

Archiv für Kinderheilkunde, Stuttgart

LXIII, Nos. 5-6, pp. 321-488. Last indexed August 15, p. 612

52 *The Parathyroid Glands. (Zur Kenntnis der Epithelkörperchen.) L. Thimm.
53 *Fluctuations in Gastric Secretion under Emotional Stress. (Psychogene Magensecretionsanomalien im Kindesalter.) W. Wegener.
54 Histologic Examination of the Musculature in Rachitic Children. M. Gutstein.
55 Comparative Study of Action of Inorganic and "Organic" Calcium-Phosphorus Preparations on the Metabolism in Recent and in Subsiding Rachitis. (Kalkphosphorpräparate.) E. Schloss.

52. **The Parathyroid Glands.**—Thimm examined the parathyroids in 100 cadavers of persons over 20 or under 2 and in sections from the throat of several fetuses, and of a large number of laboratory and zoological garden animals. Welsh's four types of parathyroids seem to correspond, he thinks, to declining glandular function, the last stage being accompanied by a colloidal secretion. The findings in this extensive material are described in detail, and especially the fetal and the atypical glands.

53. **Psychic Suppression of Gastric Secretion in Children.**—The psychogenous anomalies in gastric secretion to which Wegener refers are generally of the anachlorhydria type, but hyperchlorhydria is also encountered occasionally. There is generally an unstable nervous system and sometimes signs of the exudative diathesis. He remarks that stomach disturbances in general are unusually prevalent in his district (Mecklenburg). His patients at Rostock in describing their symptoms with almost every kind of affection invariably mention disturbance in the stomach as the main trouble. That the child refuses food is almost invariably the only symptom noticed and mentioned by the family, even when a febrile child with pneumonia or diphtheria is brought for treatment. It is now his routine practice to examine the stomach content after a test breakfast whenever there is complaint of loss of appetite and pain in the stomach. In 80 thus examined there was pronounced hyperacidity in 2 and anacidity in 17. One boy of 11 who had intense hyperacidity had been under treatment for some years for supra-orbital neuralgia, and had also astigmatism and enlarged tonsils, but no appreciable gastro-intestinal disturbances. In the other case the hyperacidity was accompanied with hypersecretion, pains and tenderness in the stomach region. The nervous origin of the secretory disturbance was evident from other signs of excessive irritability of the nervous system and also by the restoration of anachlorhydria to normal under administration of a few drops of hydrochloric acid supplementary to the impression made on the susceptible children by the introduction of the stomach tube and siphoning out of the stomach contents. Only one case proved refractory, and this was an only child of 5 whose mother was extremely neuropathic.

Archiv für Verdauungs-Krankheiten, Berlin

October, XX, No. 5, pp. 543-616

56 Diagnosis and Treatment of Gastric and Duodenal Ulcers. M. Einhorn (New York).
57 *Dry Test for Occult Blood in the Stools. (Zum Nachweis okkulter Blutungen in den Fäzes.) A. Wagner.
58 Bismuth Passes into Bronchi through Perforation in Cancerous Esophagus. (Wismut im Bronchialbaum.) S. Frank.
59 *Putrefaction in the Intestines. (Klinische und experimentelle Ergebnisse über Darmfäulnis im Jahre 1913.) A. Rodella.
60 Physiologic and Therapeutic Action of Extract of Duodenal Mucosa: Sekretin. H. R. Harrower.

57. **Dry Test for Occult Blood in the Stools.**—Wagner calls attention to his simplification of the benzidin technic as extremely rapid, reliable and cleanly. A scrap of the stool is taken up on the end of a match and smeared thin on a slide. Then the usual Schlesinger-Holt-Adler reagent is poured over the slide, and in case there is blood present a blue tint develops promptly. The reagent is a knife-tip of bepzidin on which is poured 2 c.c. of glacial acetic acid and 20 drops of a 3 per cent. solution of hydrogen peroxid. He calls this the dry benzidin or slide test, and says that with it there is no need to soil the fingers. The outcome is never dubious, as there is either no change to blue or it is pronounced. With a large proportion of blood the reaction occurs instantaneously.

59. **Putrefaction in the Intestines.**—In this second instalment of his report on his research in this line, Rodella asserts that his hundreds of experiments have conclusively demonstrated that putrefaction in the intestines is not so important a factor in morbidity as generally imagined. The putrefaction which is the work of ordinary saprophytic anaerobes must be regarded as a harmless process, never capable of generating pathologic products. This applies both to pure putrefaction, the work of anaerobes and the mixed process of decay. "Although putrefaction in the intestines is an entirely harmless process," he adds, "yet the gases and other irritating products generated may induce more or less serious disturbances. The harmless character of intestinal putrefaction, which was demonstrated anew in my experiments with intraperitoneal injection of guinea-pigs and rabbits, has also been rendered highly probable by the experience in recent military campaigns. Gunshot wounds of the abdomen with escape of intestine content into the abdominal cavity healed spontaneously without harm as a rule when they were left unmolested." The conception of auto-intoxication from bacterial putrefaction in the intestines is not sustained by his research. The products of putrefaction, however, facilitate infection, and hence they should be kept down as much as possible.

Beiträge zur Klinik der Tuberkulose, Würzburg

October 15, XXXII, No. 3, pp. 257-391

61 *Is there a Mechanical Predisposition to Apical Disease? (Untersuchungen zur Hartschen Lehre von der mechanischen Disposition der Lungenspitzen zur tuberkulösen Phthise.) H. Ulrici.
62 *Tuberculin Treatment of Tuberculosis. (Zur Tuberkulin-Behandlung der Lungentuberkulose mit Kochs Neutuberkulin-Bazillenemulsion.) H. Klein.
63 *The Albumin Reaction in the Sputum. (Bedeutung der quantitativen Eiweissreaktion im Sputum tuberkulöser Individuen bezüglich der Diagnose und Prognose der Lungenerkrankung.) J. H. Benzler.

61. **Is There a Mechanical Predisposition to Apical Disease?**—Ulrici devotes nearly fifty pages to arguments and data which disprove the assumption that the size and shape of the upper ribs and the greater or less ossification of the costal cartilages induce a predisposition to tuberculous apical processes. He gives eighteen views of the superior aperture in some of his seventy-four tuberculous patients under 30, and tabulates the details of examination of 141 persons in all.

62. **Tuberculin Treatment of Tuberculosis.**—Klein gives thirty pages of tabulated details in regard to 112 patients with pulmonary tuberculosis given a systematic course of tuberculin treatment. Slight, if any benefit was realized in the "open" cases, and in the others equally favorable results as those attained can be realized by diet and hygiene alone. The tuberculin did not prevent hemorrhages.

63. **The Albumin Reaction in the Sputum.**—Benzler examined the sputum in sixty-five cases repeatedly for albumin and found that the proportion declined as the patient improved and increased as the condition grew worse. The amount seemed to be independent of the presence and number of tubercle bacilli in the sputum, and it has nothing to do with occult blood. The albumin content sinks after an artificial pneumothorax has been induced and it can thus serve as an index for replenishing the gas.

Jahrbuch für Kinderheilkunde, Berlin

October, LXXX, No. 4, pp. 373-466

64 Amount of Sugar in the Blood not an Index of the Rapidity of Absorption of Sugar. (Zuckerresorption und Blutzuckerspiegel.) G. Bergmark.
65 *Rupture of Tuberculous Tracheobronchial Glands into the Air Passages in Childhood. M. Paunz.
66 Physiology of the Tendon Reflexes in Infancy and Childhood. (Sehnenreflexe im Säuglings- und Kindesalter.) J. Vas.
67 Composition of the Blood and Constitution of the Child's Body in Relation to Nutrition and Weight. A. O. Karnitzky.

65. **Rupture of Tuberculous Glands Into Air Passages.**—Paunz reiterates that tuberculosis in children is most frequently localized in the tracheobronchial lymph-glands. It is almost always secondary, from a primary infection in the lungs. Sometimes the foci in the lungs are so small that they are overlooked, but they are there, showing that in the great majority of cases the infection takes place by inhalation. He discusses the cases of rupture of tuberculous glands into the trachea and bronchi that have been reported in literature, including four of his own previously published, and describes in detail four further cases of his. The symptoms of pressure on the air passages are cough and difficulty in breathing. After rupture takes place there are attacks of suffocation. There may also be unilateral dilatation of the veins of the neck and slight edema of the face from the pressure. In addition to the ordinary clinical examination for tuberculosis, Roentgen examination of the glands should be made. Another important aid in diagnosis is direct tracheobronchoscopy, but in children it is preferable to use this only as an introduction to treatment. The treatment in mild degrees of compression may be only the usual treatment of tuberculosis; sea air and heliotherapy are valuable adjuvants. Severer degrees of compression should be carefully watched on account of danger of rupture. After rupture has taken place tracheotomy should be performed at once, followed by tracheobronchoscopy from below. The caseous gland should be treated as a foreign body. The rupture at first is generally only a small one, so there is abundant time for operative treatment before suffocation is fatal or even dangerous. Among ten patients treated in this way seven have recovered and three have died. The discharge of the gland through perforation is often the last act in the spontaneous healing of tuberculosis, which is not at all unusual in children over 2 years of age, increasing with advancing age. Therefore the prognosis is not bad. Only two of these ten children showed signs of pulmonary tuberculosis later. If all cases of glandular tuberculosis were carefully followed the prognosis could be improved,

Medizinische Klinik, Berlin

October 18, X, No. 42, pp. 1581-1606

68 Typhoid and Paratyphoid. N. Ortner. Concluded in No. 43.
69 Surgery in the Field. A. Köhler. Continued.
70 Psychoses in the Field. (Kriegspsychosen.) G. Buschan.
71 *Chronic Osteomyelitis. F. Rost.
72 Contraction of Certain Muscles Synchronous with the Heart Beat. (Herzsynchrone Muskelcontractionen.) E. Ruediger.
73 Suture of Tendons, Nerves, etc., in the Field. (Einige wichtige Ratschläge spezieller Art für die Wundbehandlung.) O. Nordmann.

71. **Chronic Osteomyelitis.**—In the course of this long thesis Rost states that he has succeeded in inducing a typical chronic osteomyelitis in rabbits by injecting cultures of staphylococci the virulence of which had been previously attenuated by heating. Experience with more than 200 clinical cases has demonstrated that the bactericidal properties of the serum, the opsonic index and the agglutination test have little practical value. The latter is such a sensitive reaction that any insignificant suppuration anywhere is liable to veer the reaction to positive. The antistaphylolysin reaction, on the other hand, is practical and reliable. This is based on the fact that pyogenic staphylococci produce a toxin which dissolves the red corpuscles of the rabbit. In the infected organism an antibody is generated which inhibits this dissolving action. This test differentiates tuberculous processes from ordinary osteomyelitis, as with tuberculosis there is little or none of the antitoxin generated, even when there is mixed infection. No other staphylococcus affection induces the production of so much antitoxin as osteomyelitis, and this explains why acute osteomyelitis so rarely recurs. It passes into a chronic stage with extensive production of granulation tissue. Osteomyelitis in adults is not so rare as generally supposed; it is often mistaken for a tuberculous process. In one such case the talus and in one the fifth metatarsal bone was the seat of the trouble; in a third the sternum. In one case everything seemed to indicate a sarcoma of the tibia, but an exploratory excision revealed only inflammatory tissue, and the second Roentgen picture a year later confirmed that all the trouble was osteomyelitis with a tendency to sclerosis in a man of 46, similar in every respect to the affection described by Garrè in the young. In one case the osteomyelitis was in the head of the femur. It developed abruptly with intense pains, but all signs of inflammation and tumor had disappeared by the end of the year although of course the dislocation still persists.

Therapeutische Monatshefte, Berlin

October, XXVIII, No. 10, pp. 641-672

74 *Anesthetics. (Ueber schmerzstillende Mittel.) M. Kochmann.
75 *Serotherapy of Cholera in Greece. C. Savas.
76 *Vaccination Immunity to Small-Pox. (Eine Beobachtung zur Impffrage.) E. Apolant.
77 *Red-Light Treatment of Small-Pox. (Die Finsenbehandlung bei Pocken.) C. H. Würtzen.
78 Seasickness. (Zur Entstehung und Verhütung der Seekrankheit.) F. Koch.
79 *Course of Inunctions with Green Soap. (Systematische Einreibungen mit grüner Seife.) F. Külbs.

74. **Anesthetics.**—Kochmann writes from the Pharmacologic Institute of the University of Halle to give an oversight of the present status of prophylactic and curative analgesia. He warns that the high concentration of the drug used to inaugurate anesthesia must be reduced after a certain period or it becomes dangerous. This factor of the length of time the high concentration is given is liable to be disregarded when an apparatus is used. At the same time there are certain advantages in using an apparatus. His experimental work in this line has demonstrated, he says, that mixing chloroform and ether enhances the potency of each without increasing the toxicity. Damköhler (1913) claims that a mixture of 1 part chloroform to 6 or 7 parts ether enhances the potency fully 30 per cent. It is possible, also, that the injurious action of chloroform on the circulation is nullified by the ether. Kochmann says further that the addition of potassium sulphate to a solution of novocain or cocain enhances the potency by 75 per cent. His formula is 0.25 gm. novocain; 20 c.c. of a 2.3 per cent. solution of potassium sulphate and enough of a 0.9 per cent. solution of saline to make 100 c.c. To this he adds twelve drops of a 1 per thousand solution of epinephrin. The potassium sulphate has an opposite action with some of the other anesthetics. Gros insists that the free alkaloid base is what penetrates into the tissue from any local anesthetic, and hence the action can be enhanced by adding an alkali to the solution, preferably in the form of 0.25 gm. sodium bicarbonate added to 1 gm. novocain plus 0.5 gm. sodium chlorid, dissolved in 100 c.c. distilled water.

75. **Serotherapy of Cholera in Greece.**—Savas gives here minute details of the way in which cholera was stamped out in Greece last year. A previous account of it was published recently in THE JOURNAL, Aug. 22, 1914, p. 713.

76. **Vaccination Immunity to Small-Pox.**—Apolant relates that in a certain garrison with 120 men four had not been revaccinated since childhood. Two of these four developed small-pox and it was traced to an eating-house where there were two cases. All the men frequented the eating-house and

all had thus been exposed to contagion, but none contracted the disease except these two. The cases in the eating-house were in an infant that had not yet been vaccinated, and in the grandmother whose vaccination protection had evidently faded out. The child was saved from pitting in the face by compresses dipped in a weak solution of phenol.

77. **Phototherapy in Small-Pox.**—Würtzen insists that when small-pox patients are systematically and thoroughly sheltered against the chemical light rays—as in a Finsen red-light room or in a dark room—variola runs its entire course without suppuration, changing its character completely. He declares that wherever this has been done the finest results have been realized. He cites the literature on this subject of the red-light treatment of small-pox, including an article with this title in THE JOURNAL, July 17, 1909, p. 247.

79. **Therapeutic Inunctions with Green Soap.**—Külbs has applied green soap, with the same technic as for mercurial inunctions, in over 200 cases of various affections including nervous heart trouble, chronic bronchitis, emphysema, asthma, nervous dyspepsia and migraine—all affections in which revulsion is known to have a possible beneficial action on the local and general condition. There were no by-effects, no eczema or irritation of the skin while the benefit was surprising in some cases. It was most pronounced in the cardiac neuroses and migraine cases, but in the dyspepsia cases the appetite improved and the whole condition seemed materially benefited, as also in the respiratory affections. Asthma seemed less amenable; improvement was manifest only in three of ten cases. He gives a historical sketch of this method of treatment from Richter in 1846 to Hoffa's highly favorable report on 200 cases of tuberculous glands and Kausch's recent corroboratory report on its use in tuberculosis. He does not venture to explain the complex mechanism by which the favorable action is realized, but suggests that it may be analogous to that of air baths, sun baths and local hydrotherapeutic measures.

Grèce Médicale, Athens

October 15, XVI, Nos. 19 and 20, pp. 37-40

80 *Out-Door Air in Typhoid. G. Psarafti.

80. **Typhoid Mild Among Refugees.**—Psarafti discusses the peculiar mildness and absence of complications in a small epidemic of typhoid at Samothrace during the last Balkan War. The cases were all in refugees living in tents or other shelters during a rainy season, amid privations of all kinds, the people ignorant of hygiene and depressed by fear and want. Everything was exactly the opposite of what is usually deemed indispensable in treatment of a case of typhoid; even milk was not to be obtained. But the tents were not far from the sea coast and he ascribes to the pure air and sea breeze the exceptionally mild course of the disease, and insists that this experience should warn of the necessity for pure air for typhoid patients in particular.

Policlinico, Rome

October 25, XXI, No. 43, pp. 1505-1536

81 Improved Technic for Vaccine Therapy. (Un metodo di rapida valutazione del contenuto in germi dei vaccini batterici—Considerazioni pratiche sulla vaccinazione alla Wright.) F. Valagussa.

October Medical Section, No. 10, pp. 437-484

82 Unilateral Spasm of Traumatic-Hysteric Origin. (Studio clinico sugli emispasmi di origine istero-traumatica.) P. Ciuffini.

83 Roentgenoscopic Study of the Sella Turcica in Relation to Pituitary Disease. (L'indagine radiologica della sella turcica in rapporto alle malattie dell'ipofisi.) L. Coleschi. Continued.

Riforma Medica, Naples

August 1, XXX, No. 31, pp. 841-868

84 Morphin in Pediatric Practice and Operations. (La morfina nella terapia pediatrica con speciale riguardo alle sue applicazioni nella chirurgia infantile.) C. Oliva. Commenced in No. 30.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 25, LVIII—II, No. 4, pp. 241-308

85 *Treatment of Dementia Praecox. N. J. Lemel.
86 Osteomalacia. W. M. van der Scheer.
87 Successful Removal of Tumor in Pituitary Gland. P. S. Klots.

August 1, No. 5, pp. 309-380

88 *Heliotherapy at the Seashore in Surgical Tuberculosis. (Zonbehandeling van chirurgische tuberculose aan zee.) M. P. van D. Andreae.
89 Improved Stethoscope. J. W. T. Lichtenblet.
90 Acute and Chronic Melancholia. (Depressieve Toestandsbeelden.) J. van der Torren.

August 8, No. 6, pp. 381-428

91 *Meltzer Insufflation in Internal Disease. (De Methode van Meltzer in de inwendige Kliniek.) A. A. H. van der Bergh and E. D. Wiersma.
92 Intravenous Injection of Concentrated Solutions of Neosalvarsan. J. van Assen.

85. **Thyroid Treatment of Dementia Praecox.**—Lemel remarks that when dementia praecox develops during puberty it seems self-evident that some disturbance in functioning of some organ or organs is responsible for it, and he is convinced that the thyroid gland can be incriminated in many cases and that the dementia may subside under thyroid treatment. This occurred in 11 of the 12 cases he here reports in detail. The improvement in 8 was most striking. Three of the patients were men from 17 to 24, the others girls of 19 to 21.

88. **Heliotherapy of Bone and Joint Tuberculosis at the Seashore.**—Andreae's experience with this at the Katwijk seaside sanitarium in Holland has been extremely favorable and free from deleterious by-effects.

91. **Intratracheal Insufflation.**—Van der Bergh and Wiersma know of very few instances in which the Meltzer and Auer method was applied in internal medicine, and they add another to the list. Their patient was a woman with a tumor in the cerebellum which evidently was injuring the respiration center as she gradually stopped breathing early one morning while in the hospital for consideration of operative treatment. As ordinary methods for artificial respiration were out of the question for permanent relief, and as at the end of an hour there seemed no hope of the woman's regaining spontaneously the power to breathe, intratracheal insufflation was applied, with prompt and striking benefit. It was kept up all day but toward evening the heart began to fail and the woman died at 7 p. m. This experience has demonstrated anew the advantages of intratracheal insufflation under certain conditions. No difficulty was experienced in this case in introducing the catheter into the larynx but if it should go astray in the esophagus the oxygen might injure the stomach lining. Others, including Meltzer, have warned of this danger.

Russky Vrach, Petrograd

June 13, XIII, No. 22, pp. 773-804

93 Appendicitis in an Inguinal Hernia. V. R. Braizeff.
94 *The Clinical Value of the Pirquet Skin Tuberculin Reaction. V. I. Glinchikoff. Commenced in No. 21.
95 *Tubercle Bacilli in the Blood in Pulmonary Tuberculosis. V. N. Vinogradoff.
96 Action of Digestive Ferments on "Fish Poison." S. V. Konstansoff and E. O. Manoiloff.

June 20, No. 23, pp. 805-836

97 *Action of Poisons on the Vessels of the Liver. V. I. Berezin.
98 *Action of Poisons on the Vessels of Inflamed Tissues, and of Epinephrin in Peritonitis. D. A. Eskin.
99 *Diagnosis of Echinococcus Disease of the Liver. D. S. Serebriakoff.
100 *Action of Caisson-Work on the Blood. A. S. Solovtzova. Commenced in No. 13.

94. **Skin Tuberculin Reaction.**—Glinchikoff reports the results of extensive study of Pirquet's test in different diseases besides tuberculosis, pleurisy, pneumonia, typhoid, etc. Of the 40 tuberculous patients, 25 showed marked improvement of health, even recovery, and in these patients the skin reaction was intense. The Pirquet was very faint in the 10 progressive cases. In 5 stationary cases, the reaction was likewise stationary. The reaction is evidently in inverse proportion to the intensity and extent of the lesion in the lungs, and thus repeating the test at intervals may give an idea of the probable outcome in a given case. The same law proved to apply also in pleuritic patients, in typhoid, pneumonia, etc. In all acute infections the Pirquet was negative when the disease process was at its height and became pronounced with the recovery of the patient. Acute infections

give a stronger Pirquet than chronic disease, anemia, valvular heart lesions, disease of the liver, etc.

95. **Tubercle Bacilli in the Blood.**—Vinogradoff comes to the conclusion from examination of fifty tuberculous patients that the presence of virulent tubercle bacilli in the blood of patients with tuberculosis of the lungs or other organs is a phenomenon of rare occurrence and brief duration.

97. **Action of Poisons on the Vessels of the Liver.**—The frog or guinea-pig liver was isolated and flushed with Ringer-Locke's fluid passed through a pipet introduced into the abdominal vein (afferent) and posterior vena cava (efferent pipet). The portal vein, the hepatic artery and the common bile duct were ligated. Among the various chemicals tested, epinephrin, in a solution of 1 to 200,000 or 1,000,000 caused marked contraction of the hepatic vessels; beta-imidazolylethylamin (1:1,000,000) does not affect the vessels of the liver nor those of the periphery, but causes contraction of some vessels in guinea-pigs. Caffein (1:1,000) caused dilatation, as also pepton, while barium chlorid (1:1,000) did not act at all, or dilated the vessels in the frog, but in guinea-pigs it constricted them. Nicotin (1:1,000) induced contraction.

98. **Action of Poisons on the Vessels of Inflamed Tissues and of Epinephrin in Peritonitis.**—Eskin studied on the vessels of the normal or inflamed ears of rabbits the action of different substances including epinephrin, normal serum, serous effusion, caffein, cocain, and the toxins of cholera and of typhoid bacilli. Altogether forty-five experiments were made. He found that epinephrin acted on the vessels of an inflamed ear less than under normal conditions, frequently producing vascular dilatation. Caffein, normally dilating the vessels, causes a stronger vasodilatation in an inflamed ear. The reaction of epinephrin in artificially produced peritonitis is the same as in normal conditions, though it does not cause any marked constriction or any other action on the vessels of an inflamed mesentery or intestines. Serum (1:5,000) constricts normal vessels, but the action is less in case of inflammation. Cocain contracts the vessels of an inflamed ear less than those of a normal; weak caffein solutions (1:5,000 or 10,000) cause a stronger vasodilatation in an inflamed than in a normal ear. The toxins of different bacteria contract the vessels of both the inflamed and normal ear alike. Diluted exudates constrict the vessels of a normal ear, but do not influence an inflamed one.

99. **Diagnosis of Echinococcus Disease of the Liver.**—In two cases of alveolar echinococcus disease of the liver Serebriakoff did not find the usual clinical picture of this disease, namely, unusual hardness of the liver, regular enlargement and pain. To avoid blunders in diagnosis in such puzzling cases the blood should be examined for eosinophilia. It was pronounced in his two cases. Eosinophilia is due, in his opinion, to toxic influences produced by the echinococcus.

100. **Influence on the Blood of Working in Compressed Air.**—Solovtzova examined the blood of fifty-six caisson-workers. Their age was 20 to 40 years. Some were old, experienced caisson-workers, some were working in compressed air for the first time. The examination was usually six hours after the last meal. All of the men showed anemia in the form of decreased amount of hemoglobin and of the red corpuscles and frequently of the white. There was no parallelism between the low proportion of hemoglobin and of reds, as a considerable reduction in the hemoglobin percentage might be combined with a sudden increase in the number of erythrocytes. Microcytes would occasionally show; the polynuclear neutrophils showed a decrease, while the large lymphocytes and the eosinophils had increased. The reduction in the hemoglobin percentage and of the erythrocytes occurred with but an inconsiderable increase of the atmospheric pressure. In some of the men leukocytosis was evident. The blood returned to normal very slowly; even after an interval of two and a half weeks it was not always entirely normal. In those caisson-workers who had worked only two weeks, the blood became normal in a few days. As work in the caissons thus causes such serious blood changes, it is necessary to take all kinds of sanitary and hygienic precautions to guard the workingmen's health.

Hospitalstidende, Copenhagen

October 14, LVII, No. 41, pp. 1249-1272

101 Cultivation of Spirochete of Syphilis. (Rendyrkning af Spirochæte pallida.) A. Kissmeyer.
102 The Medical Profession in Greenland. (Lægevæsenets Ordning i Grønland.) A. Bertelsen.

Nordisches medizinisches Archiv, Stockholm

XLVI, Surgical Section No. 3. Last indexed Jan. 31, p. 422

103 *Operations to Close Gap in Skull. (Zur Deckung von Kranialdefekten.) O. Löfberg.
104 *Exclusion of the Bladder in Severe Tuberculosis of this Organ. (Exclusio vesicæ bei schwerer Blasentuberkulose.) E. Key.
105 Forking Urethra. (Fall von Bifurcatio urethrae.) T. Rietz.
106 Tumors of Greater Omentum. S. Johansson.
107 Fracture of the Wrist. (Zur Frage von den typischen Radiusfrakturen am Handgelenk und ihrer Behandlung.) P. Haglund and S. Hybbinette.
108 *Surgery of the Lungs. G. Ekehorn.

103. **To Close Gaps in the Skull.**—Löfberg reviews the different technics that have been applied for this purpose, including the use of a thin sheet cut from a cow's horn. This material was selected as being an epidermis substance which resists absorption unusually long although it in time is all absorbed. The regeneration of bone thus is able to keep pace with the absorption. Lindström and Lexer have had favorable experiences with horn, but Löfberg prefers an autoflap for the purpose. He reports excellent results in four cases of an extensive defect closed with a flap of periosteum and skin, taken from near by, or a strip from the internal lamina or with a sheet of bone and periosteum cut from the tibia. He mentions in conclusion Kleinschmidt's suggestion for a bone flap entirely covered with periosteum. This can be obtained by cutting with the bone flap enough extra periosteum to cover the other side of the bone.

104. **Severe Tuberculosis of the Bladder.**—Key says that the intensely painful subjective symptoms caused by the contraction of the bladder can be entirely arrested by diverting the course of the urine so that there will be nothing in the bladder to start it to contracting. The patient's life is not lengthened by the operation but he is spared torment by this exclusion of the bladder. The difference in the condition before and after was expressed by one patient as "the difference between hell and paradise." In the cases on record, the ureters were implanted in the bowel in 2 cases with the death of one patient. Permanent ureterostomy has been done in 3 cases with most gratifying results. Key contributes 2 cases to this group and extols the advantages of this technic. Nephrostomy was done in 6 cases, with one death. The drawback to nephrostomy is that it damages the kidney more or less. Ureterostomy is preferable if the ureters are still permeable.

108. **Surgery of the Lungs.**—Ekehorn's article is a discussion on the preferable method for regulating the atmospheric pressure during operations on the lungs; opinions are still divided as to the superior advantages of underpressure or overpressure.

Ugeskrift for Læger, Copenhagen

October 8. LXXVI, No. 41, pp. 1767-1800

109 Connection between Meteorologic Conditions and Acute Febrile Diseases. (Undersøgelse af meteorologiske Kombinationers Forhold til visse akute, febrile, reumatiske, katarralske og infektiøse Sygdommes Genese.) H. Hansen.

October 15, No. 42, pp. 1801-1836

110 *Hematuria with Appendicitis. A. Nielsen.
111 Industrial Accident Insurance from Medical Standpoint. (Vor Ulykkesforsikringslovgivning og Lægerne.) V. L. Faber.

110. **Hematuria with Appendicitis.**—Nielsen has found records of 19 cases in which hematuria occurred apparently secondary to appendicitis, and in his own experience the microscope has shown blood corpuscles in the urine in a surprisingly large proportion of the cases. This occurred, namely, in 6 of 33 cases of chronic appendicitis and in 3 of 7 acute cases. The discovery of microscopic hematuria cannot be accepted, therefore, as an always reliable sign of a concrement in the kidney in dubious cases.